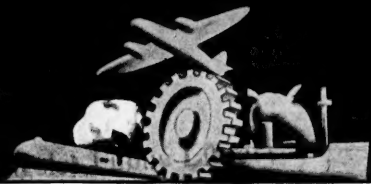


MANUFACTURERS RECORD



FEB 20 STACKS Opportunity

The South is a land of opportunity. More than any other section it has the opportunity, through continued development, to serve the nation and by so doing to serve itself.

Its natural resources and its native born population logically attract industry and encourage its development.

Its fertile soil and mild climate are ideal for diversified farming.

Now, when the nation needs a maximum of all useful goods, is the time for the South to tell its story.



CLARK'S NEW 2,000-LB. TRUCK

CLARK "CLIPPER"

To help accelerate America's production! It handles raw materials, parts and finished product fast.

Carries 1,000, 1,500 or 2,000-lb. loads (there are three models) and has tiering ranges of 60 in. and 108 in. Increases storage capacity by high tiering.

This powerful (four-cylinder Con-

tinental "Red Seal" engine), fatigueless, carrying, tilting and tiering truck is light enough for wood floors and small elevators, compact for use in crowded areas, low enough to enter transport trucks.

Low in first cost, economical to operate. Write for Clark "Clipper" Folder.

CLARK TRUCTRACTOR

Div. of Clark Equipment Co.

119 SPRINGFIELD PLACE • BATTLE CREEK, MICH.

TH
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A I

THERE'S PLENTY OF DIESEL FUEL

Fairbanks-Morse Diesels use a fuel oil which is a by-product of many gasoline refineries. Hence it is always cheap and plentiful.



POWER TO WIN THE WAR!

What extra power you need—will you provide it in a way which will:

- ... avoid peak penalties and demand charges?
- ... give dependable stand-by service at low cost?
- ... permit generating hard-to-buy, off-standard types of current which certain equipment demands?
- ... keep your unit power costs low?

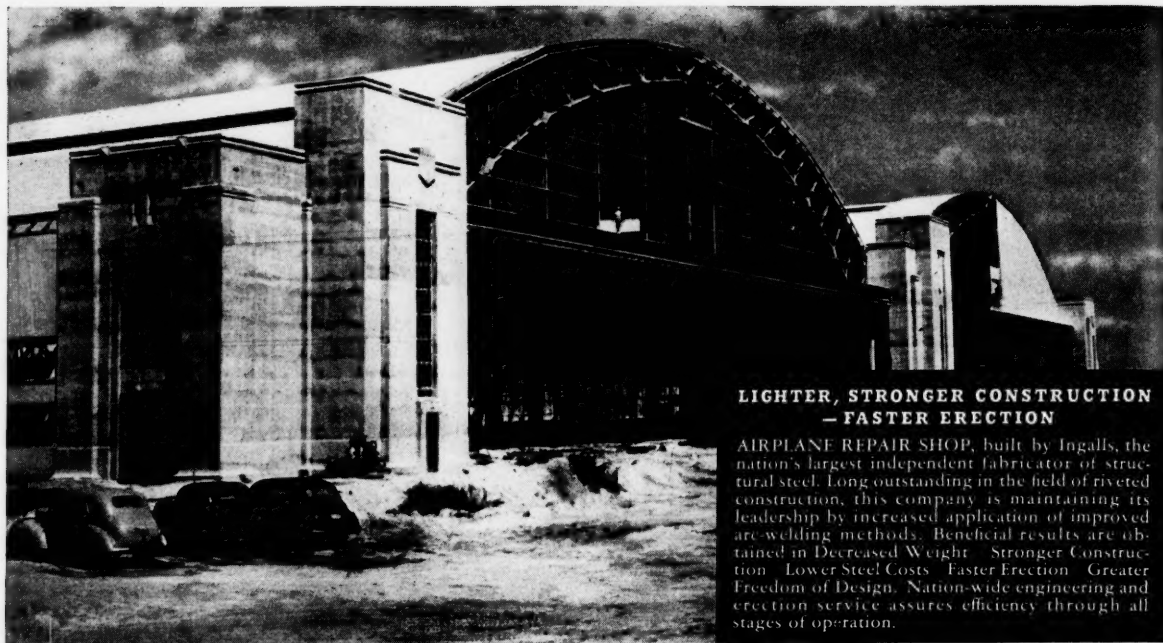
You can answer "yes" to *all* these questions—if you generate your own extra power with Fairbanks-Morse Diesels. But—don't expect uninterrupted, low-cost power from

just *any* Diesel. For *power to win*, you must use the *right* Diesel for the job . . . a Diesel that has *stamina* . . . that's built not merely for low fuel cost but also for *low maintenance cost* in sustained heavy-duty service.

If you need more power, it may pay you handsomely to have an F-M power engineer study your needs and submit recommendations. No cost, no obligation. Simply write Fairbanks, Morse & Co., Dept. B93, 600 S. Michigan Ave., Chicago. Branches and service stations throughout the United States and Canada.

AIRBANKS • MORSE DIESELS

DIESEL ENGINES ELECTRICAL MACHINERY MAGNETOS RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS MOTORS FAIRBANKS SCALES WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS

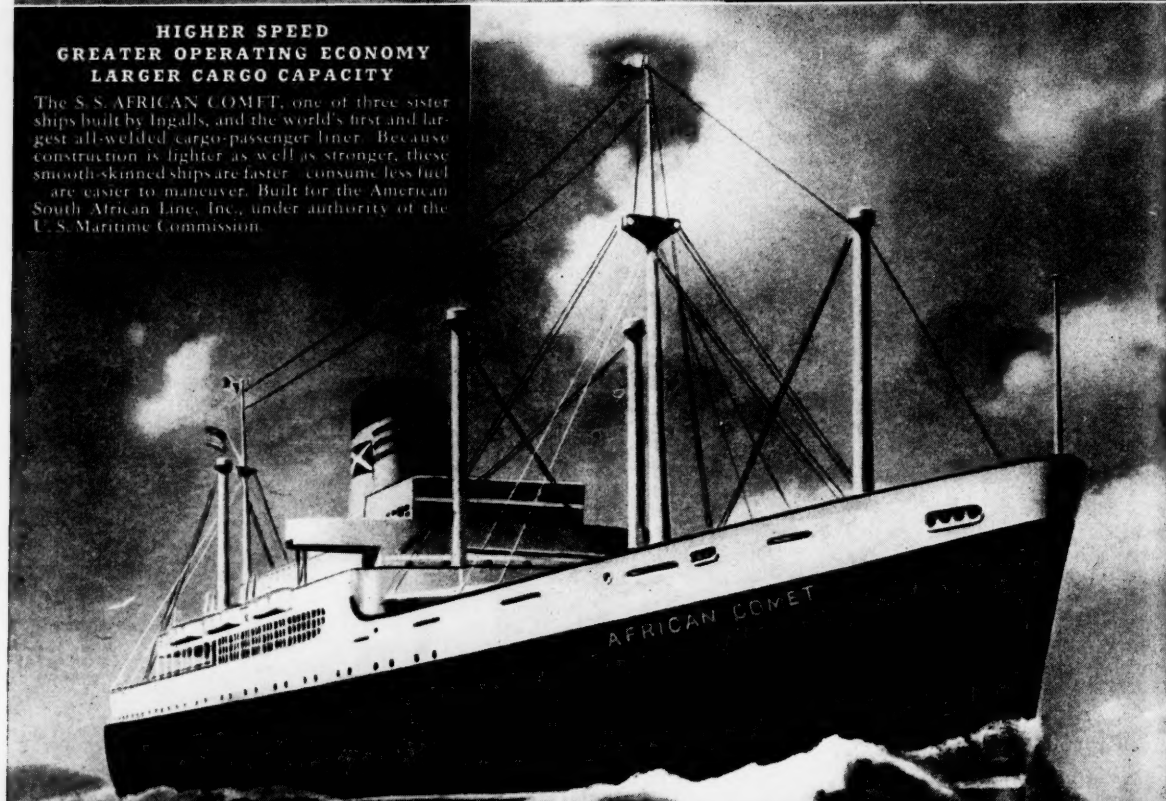


**LIGHTER, STRONGER CONSTRUCTION
— FASTER ERECTION**

AIRPLANE REPAIR SHOP, built by Ingalls, the nation's largest independent fabricator of structural steel. Long outstanding in the field of riveted construction, this company is maintaining its leadership by increased application of improved arc-welding methods. Beneficial results are obtained in Decreased Weight, Stronger Construction, Lower Steel Costs, Faster Erection, Greater Freedom of Design. Nation-wide engineering and erection service assures efficiency through all stages of operation.

**HIGHER SPEED
GREATER OPERATING ECONOMY
LARGER CARGO CAPACITY**

The S. S. AFRICAN COMET, one of three sister ships built by Ingalls, and the world's first and largest all-welded cargo-passenger liner. Because construction is lighter as well as stronger, these smooth-skinned ships are faster, consume less fuel, are easier to maneuver. Built for the American South African Line, Inc., under authority of the U. S. Maritime Commission.



THE INGALLS IRON WORKS COMPANY
BIRMINGHAM, ALABAMA

Subsidiary Companies and Divisions

THE STEEL CONSTRUCTION COMPANY • THE INGALLS SHIPBUILDING CORPORATION • BIRMINGHAM TANK COMPANY

Shipyards • PASCAGOULA, MISSISSIPPI • DECATUR, ALABAMA

Branch Offices • NEW YORK • PITTSBURGH • ATLANTA • NEW ORLEANS



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MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly by the

MANUFACTURERS RECORD PUBLISHING CO.

FRANK GOULD, President

Main Office: Candler Building, Baltimore, Md.
Phone: LEExington 7065

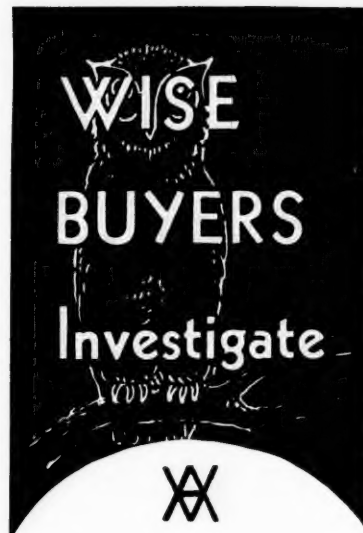
Branch Offices: New York—393 Seventh Ave., Room 1615. Phone: Penna. 6-3515.
Chicago—28 East Jackson Blvd., Room 712. Phone: Harrison 5867.
Cleveland, O.—Caxton Building, Room 801. Phone: Main 3311.

Subscription Rates: One Year \$2.00. Two Years \$3.00. Single Copies 25c, back numbers over 3 months old 50c. Other Publications of the Manufacturers Record Publishing Co. Construction (daily and monthly issues) \$10.00 a year. Construction (monthly issues only) \$2.00 a year. Blue Book of Southern Progress (annual) \$1.00 per copy.

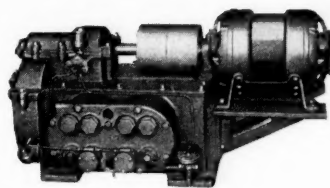
Member A. B. C.

Entered as second class matter at the postoffice, Baltimore, Md., U.S.A., under act of March 3, 1879. Volume 111, Number 1 Monthly

FEBRUARY NINETEEN FORTY-TWO



Westinghouse
AIR COMPRESSORS



WHEN you need air for new plants, or more air for expanded facilities, it will pay to consider Westinghouse Compressors . . . They embody exclusive design features, superior materials, and skillful manufacture, to assure highly efficient performance and enduring service at low operating cost . . . Our line comprises many types and sizes up to 200 C.F.M., applicable to a wide variety of uses. There is one for your specific need. The illustration shows our de luxe slow speed Type "N", air-, or water-cooled, 12½ to 100 C.F.M. Write for catalogues and prices.

Westinghouse . . .
AIR BRAKE CO.
Industrial Division
PITTSBURGH, PA.



THE ENGINEER PLANS IN TERMS OF THE ERA AHEAD

On a nearing tomorrow, the sun of a new economic era will break through the dark, thunder-bitten skies.

New needs, new methods, new products will call for transitions, some of which can be anticipated in the factories and plants the Engineer designs and plans for you now.

This anticipation calls for the perspective of experience—a perspective which follows naturally from our forty years of Engineering work in a period of accelerated change.

Engineers
FOR 40 YEARS

**J. E. SIRRINE
& COMPANY**



GREENVILLE • SOUTH CAROLINA

INDUSTRIAL PLANTS • PLANS AND DESIGNS • POWER

LOCATION STUDIES • WATER SUPPLY AND TREATMENT

As the Editor Sees It

Conveyance

What are we going to do when the automobiles and the tires wear out? This is not merely a question involving comfort and convenience. It is an industrial problem as well. How are many of us going to get from our homes to our work and back home again?

The automobile has been the primary cause of fanning out our urban communities into vast suburban areas. Public transportation facilities in most of these outlying districts are painfully inadequate, and in many they do not exist at all. Time is too short and investment risk is too great to permit other than makeshift solutions to this problem.

It is not too early for all of us to seriously consider this problem, not as our individual one, but as a community or district problem that must somehow be solved.

Glass for Tin

Now that the source of supply of tin that we formerly imported from the East Indies has been cut off by the war with Japan it is interesting to speculate on the possible substitute or substitutes for the tin can in our food canning and packing industries. Our guess is that the principal substitute will be glass. If we are correct in this forecast it will mean a large scale and rapid development in the glass manufacturing industry.

Goods not subject to rapid deterioration from atmospheric exposure will be packed in cardboard cartons. This should increase the demand for southern pulp.

A Necessity

Several days ago we had the pleasure of reading an informal letter from a magazine publisher to one of his men on the road. With the hope that our readers will find the point of view expressed interesting we print it in full herewith.

Dear Mr. _____:

Replying to your letter of January —, I give advertisers credit for thinking as far ahead as I do and maybe a lot further. I do not see how they can avoid reaching the conclusion that for future welfare, if private industry

is to retain its identity, it must advertise constantly.

I was very much impressed with an article that appeared in *Printers' Ink* by H. A. Batten, President of N. W. Ayer & Son. The enclosed circular we are getting out (reprinted by permission) contains some extracts from it. Advertising is not merely to sell goods. It is to keep up contact. Private industry is the hope of this country. War necessities are putting it completely under domination of government, and from what has gone on in the last ten years if it keeps up it will be good-bye private industry, just as sure as you are where you are.

What have industries to advertise, you may ask? They have got to raise their voice about a lot of things. As Batten says, they can help to prevent inflation; they can help in the discussion of the all important question of taxation, and there are a dozen lines that require discussion and ventilation. Private industry has been silent too long.

Beyond all that, they have got to advertise for good-will for the future. It is silly for a great manufacturing plant, even if its only customer is the government, to rest content and have the merit of its product forgotten. A lot of things have been forgotten because they failed to keep the public in touch with them. There is not any money they can spend that will give them the contacts they need for the future at such a cheap cost. They are all making money and they are going to pinch pennies and cut down on a thing that has made their business.

I saw an advertisement the other day in *Life* magazine. After the order was out that automobile production would be stopped, Oldsmobile came out with a beautiful colored ad telling about the advantages of the 1942 Oldsmobile. Somebody might say it was wasted space, wasted money, wasted effort. I don't say anything of the kind. It will make a lot of people feel that they wished they had an Oldsmobile, and that is what Olds wants to do, even if he cannot supply it right away.

This war is not going to last forever. We have got to build an economy for the future. No country on earth can stand the gait we are going now. Are we to sacrifice everything we have worked and planned for when we have the means to do *something* toward a better day? I am not finding fault with the necessities of new rules for the exigency of the times, granted that all the needs of war must come first—I fully believe that—but I tell you with all the earnestness I can summon I think advertising is a prime mover in every effort for stability in whatever direction we may look.

Industry as a whole has been silent too long. It is afraid to put its neck out they say. I cannot imagine, if industry protested against some of the harmful things that have been put over on it, that the tax bill would be any higher than it is now planned to be. Instead of that industry could have put its case before the country. It could have shown the high-handed attitude of labor and the theorists who still side with labor in their unjust demands.

We are to make a new world we are told. Nonsense. Principles endure when they are right. I am not wandering at all. I am sticking to the point that here is a vital force for permanent upbuilding along right lines, and we are asked to throw it over for the duration. I could go on longer, but I guess you are tired from reading this.



ATTENTION, INDUSTRY!

TODAY, IN OUR RACE against TIME,
industrial expansion requires
rapid, dependable and accurate
planning.

EXPANDING INDUSTRY is finding in the
Coastal Southeast the vital, time-
saving elements which the pres-
ent situation demands.

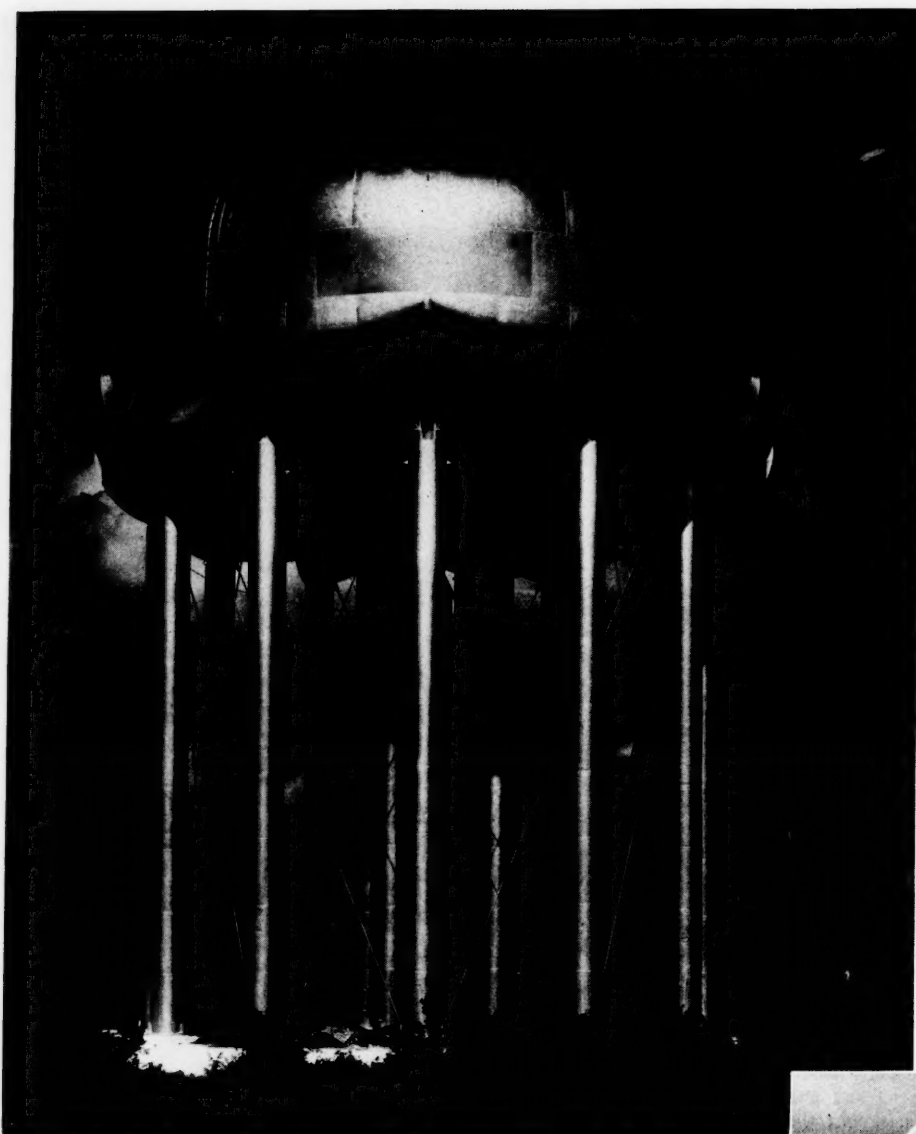
**THE COAST LINE'S DEVELOPMENT
SERVICE** has the essential in-
formation concerning the South-
east which expanding industry
needs.

*For complete and confidential data,
write, telegraph or call:*

J. H. Hatcher

Manager Development Service
Wilmington, N. C.

ATLANTIC COAST LINE RAILROAD



Left: 1,500,000-gal. tubular-column radial-cone tank providing gravity pressure in the southeastern portion of San Antonio, Tex. It is 75 ft. to bottom and has a 30 ft. range in head. Below: 250,000-gal. ellipsoidal tank 104½ ft. to bottom serving the northern portion of the distribution system.

EFFICIENT WATERWORKS SYSTEMS keep armament program in high gear

The most efficient way to provide uniform pressures in a waterworks system where the demand varies from 10 to 86 million gallons per day is to install adequate storage facilities. And that is exactly what the City of San Antonio, Tex., has done.

The 1,500,000-gal. radial-cone tank shown above has been installed in the southeastern por-

tion of the City to augment a 2,480,000-gal. Horton ornamental standpipe built in 1930, while the 250,000-gal. ellipsoidal tank at the right serves Terrill Hills and Alamo Heights to the north.

Efficient municipal water systems make it possible for industries to maintain armament production schedules by eliminating the devastating effect of water shortage.

CHICAGO BRIDGE & IRON COMPANY

Birmingham	1530 North Fiftieth Street	New York	3313-165 Broadway Bldg.
Washington	632 Washington Bldg.	Cleveland	2216 Builders Exchange Bldg.
Houston	5614 Clinton Drive	Chicago	2106 McCormick Bldg.
Tulsa	1611 Hunt Bldg.	San Francisco	1040 Rialto Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.



Faster Production *for Victory*

**...Often Means That Your Plant
Must Control Its Own Weather!**

**Celotex Vapor-seal Roof Insulation and
Celotex Bonded Built-Up Roofs are Important Factors
In Controlled Temperatures and Humidity**

WHETHER you are enlarging your plant to speed production for victory, or remodeling it, or both—you will be devoting special attention to its most vulnerable exposure—the roof.

By placing Celotex Vapor-seal Roof Insulation between your manufacturing processes and outside heat or cold, you facilitate the control of temperatures and humidity which are so often essential to maximum production speed. And, in northern climates, you materially reduce heating costs!

By using Celotex Bonded Built-Up Roofs, you are assured of guaranteed protection against repair expense for either ten, fifteen, or twenty years.

Write for the name of your nearest Celotex Roofing Contractor.

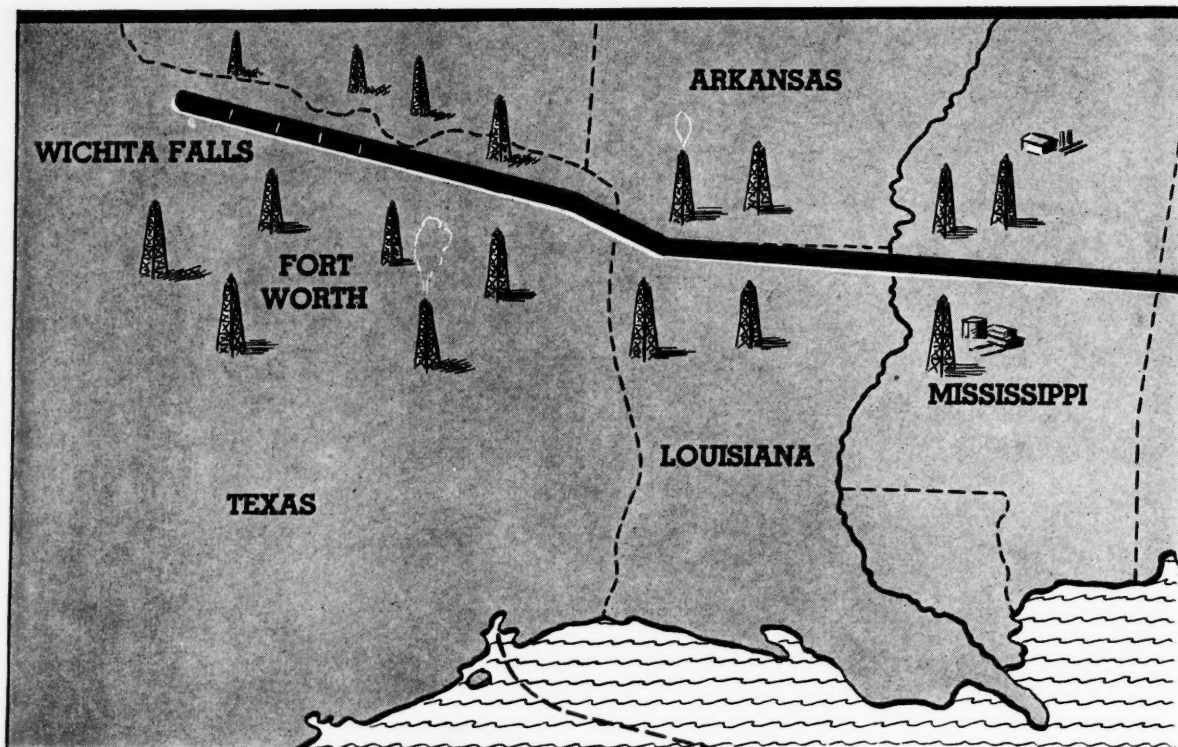
CELOTEX

REG. U.S. PAT. OFF.

**VAPOR-SEAL ROOF INSULATION
BONDED BUILT-UP ROOFS**

The word Celotex is a brand name identifying a group of products marketed by The Celotex Corporation.

THE CELOTEX CORPORATION • CHICAGO
FEBRUARY NINETEEN FORTY-TWO



A VICTORY MEASURE

MR. AMERICAN:

With the Government's approval of the proposed pipeline shown on the accompanying map, oil would be delivered *safely* to the Eastern Seaboard and—

14 tankers and their convoys would be released for active duty elsewhere

Here is How—By a Pipeline

1050 miles long from north Texas to Savannah, Ga., and Charleston, S. C.

Requiring, with pumping stations, not over 100,000 tons of steel pipe, machinery, and buildings.

Costing \$25,000,000.

Which can be constructed in 90 days after pipe and machinery are on the ground.

Which can deliver 70,000 barrels of crude oil daily for refining at Savannah, and for movement, north and south, over the Intracoastal waterways or by "shuttle tanker."

With a capacity equivalent to 14 average tankers operating between the Texas Gulf Coast and the Eastern Seaboard.

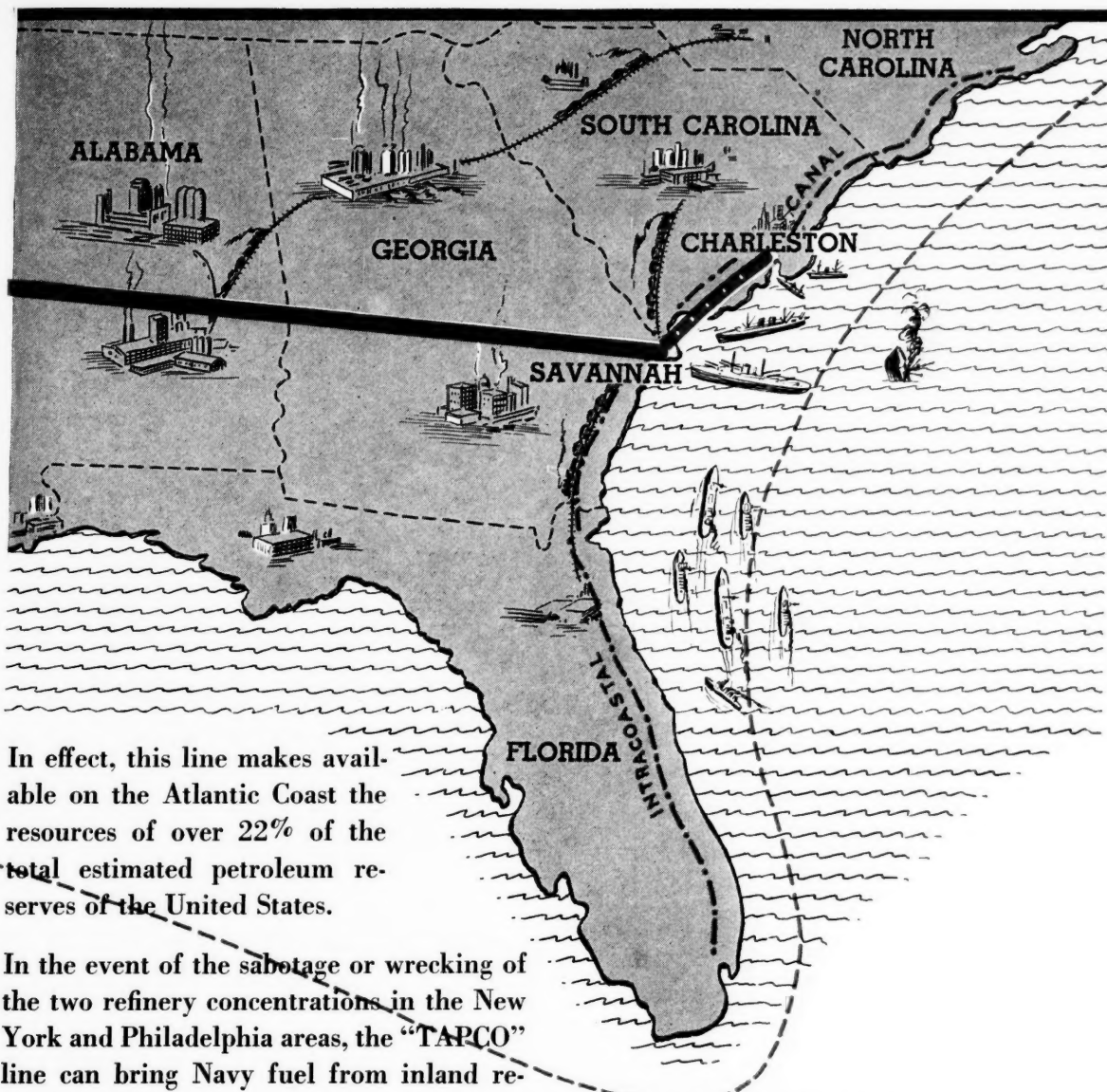
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FEB



In effect, this line makes available on the Atlantic Coast the resources of over 22% of the ~~total~~ estimated petroleum reserves of the United States.

In the event of the sabotage or wrecking of the two refinery concentrations in the New York and Philadelphia areas, the "TAPCO" line can bring Navy fuel from inland refineries along its route and also domestic and industrial fuel, if required.

"TAPCO" may be the Navy's "life-line" as regards fuel oil supply. "TAPCO" will not require convoy and is not vulnerable to attack by submarine or bomber.

Attest:

Paul E. Hadlick
Counsel

E. L. Davison
President
Mount Vernon Mortgage Corp.

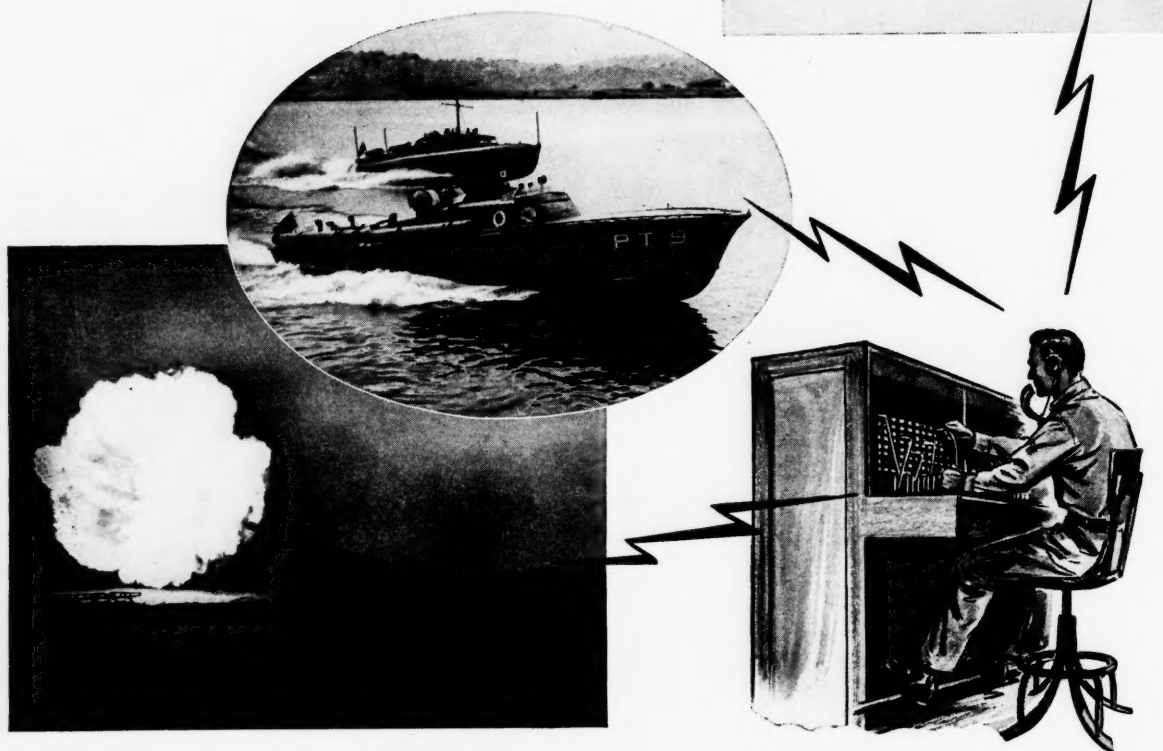
Frederic G. Shuckler . *Alfred Freeman Walker*
Consulting Petroleum Engineer Vice President
Trans-American Pipeline Corporation

TRANS-AMERICAN PIPELINE CORPORATION
FORT WORTH, TEXAS SAVANNAH, GA.

February 3, 1942

FEBRUARY NINETEEN FORTY-TWO

WIRE Protects **the cable lines** **of coast defense**



Long-range guns, dive bombers and torpedo-carrying assault boats are principal elements in American coast defense. In a crisis, the network of telephone lines between observation stations, airplane bases and artillery emplacements is essential to the coordination of striking power.

A humble yet vital job in protecting this network is performed by bethanized (zinc coated) wire, which is used as a wrapping for under-water cable sections of the coast defense communication lines. There's a double wall of bethanized wire around each lead-sheathed bundle of copper telephone lines.

Bethanized wire is selected for this work because it has a combination of improved corrosion-resistant and high physical properties.

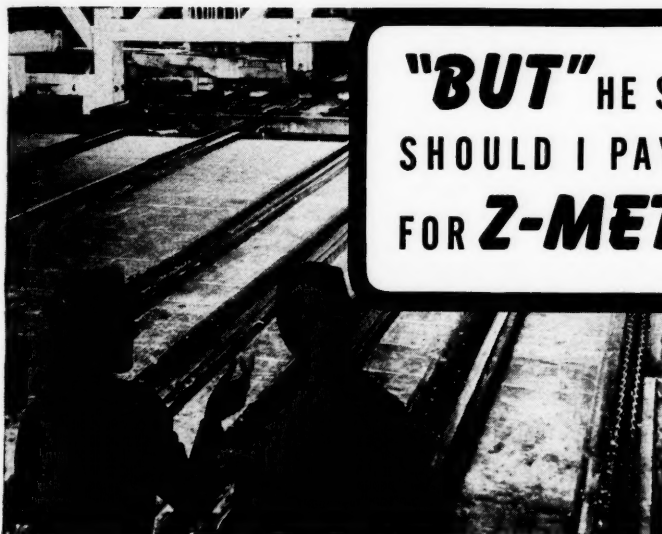
Being applied by electricity, the bethanized zinc

coating is 99.9+ per cent pure, uniform in thickness over every inch of the wire. This coating offers unusual protection against salt-water corrosion, helps to assure that communication lines will be in perfect working order to handle any emergency.

BETHANIZED WIRE



BETHLEHEM STEEL COMPANY



**"BUT" HE SAID, "WHY
SHOULD I PAY A PREMIUM
FOR Z-METAL?"**



*THE REX
MAN

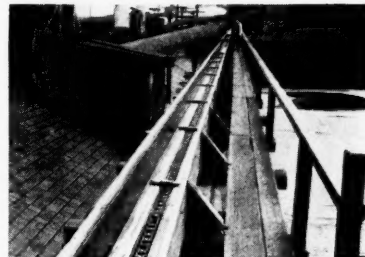
...AND THIS IS WHAT I* TOLD HIM...



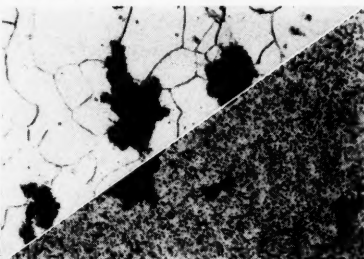
① "MAYBE Z-METAL chain belts last longer," this superintendent said. "But is this worth the premium that you are asking me to pay? Sure, I want all the durability I can get, because breakdowns these days are more than a nuisance."



② "BELIEVE ME, if they cost twice as much, they would still be worth it! They not only last a *little* longer than ordinary chain belts—they last a *whale* of a lot longer! They're not only a little stronger—they're over 25% stronger!"



③ "NOT ONLY THAT, Z-metal chain belts offer you practical immunity against moist conditions. These three factors of greater strength, much longer life, and resistance to corrosion mean a far greater return on your investment."



④ "Z-METAL'S SUPERIORITY is fact, as these micrographs show. At left is the structure of good malleable iron; at right is that of Z-metal. When you think that Z-metal only costs you a little more, you'll marvel at their longer service."



⑤ "Z-METAL CHAIN BELTS can replace conveyors like these on the same sprockets without any expensive changes, and better than double their life. They've done it for many other mills, and I am sure they can do it for yours."



⑥ "WELL, I BELIEVE you've sold me," he said. "After all, if I can get that kind of durability for just a little more money my figures show that a Z-metal chain belt can pay for itself in a hurry through eliminating frequent delays and repairs."



Z-metal chain belts are hard at work these days in plants the country over. They've answered a variety of problems for others; they can do the same for you. Naturally, orders bearing highest priority distinction take precedence. Chain Belt Company, 1718 W. Bruce Street, Milwaukee, Wis.

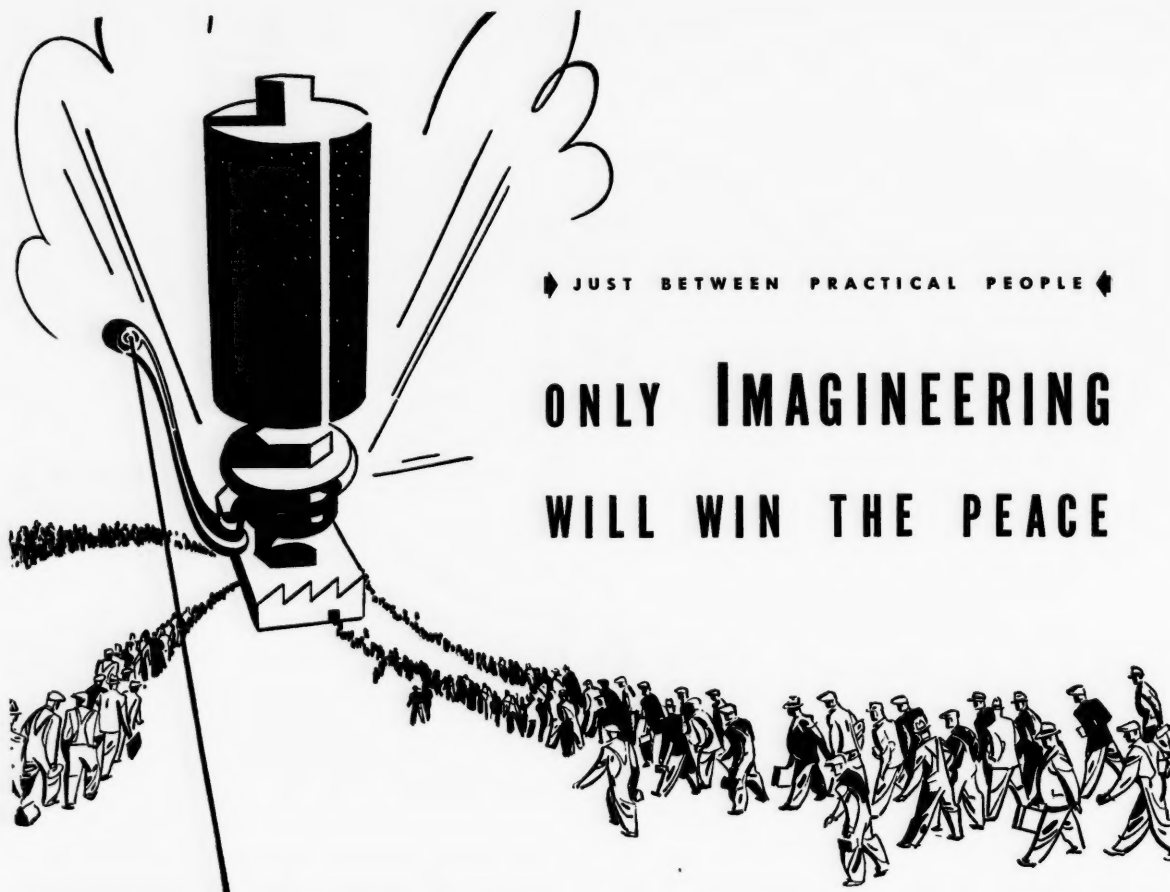
REX CHAIN BELTS

CHAIN BELT COMPANY OF MILWAUKEE

Baldwin-Duckworth Chain Belt Division, Springfield, Massachusetts • Worcester, Massachusetts
Rex Chain Belt and Conveyor Divisions, Milwaukee, Wisconsin



FEBRUARY NINETEEN FORTY-TWO



♦ JUST BETWEEN PRACTICAL PEOPLE ♦

ONLY IMAGINEERING WILL WIN THE PEACE

MAKING WAR is America's business, today. It is our sole business here at Alcoa. And whatever pride we might be inclined to take in production records is abashed before the sacrifices of the men who are out there, fighting.

Somehow we think American businessmen are going to be wise enough to see that winning the war is only the beginning of the job. Winning the peace is their task, too.

The number of men you can keep on your pay roll; and the number of new ones you can add to your pay roll, when this thing is over, is the real measure of how good a peace we have won.

As we see it, the only thing that will keep men employed, then, is a large dose of *Imagineering* right now.

We coined the word *Imagineering* to describe the audacious imagination, plus action, which is needed to outwit the future.

The plastics industry may think of Alcoa Aluminum

as a competitor. Yet there must be many things that plastics and aluminum could do better in combination than either could do separately. Finding out, now, what those possibilities are would be practical *Imagineering* to make new jobs.

The building industry may think of Alcoa Aluminum as something to make into a very good paint, or a super-super window. Let ten men in the building material field ask themselves the question, "Why is a house heavy?" and if they insist upon finding the answer they will likely come up with an audacious type of construction that will make ten new industries. There might even be some Alcoa Aluminum in the solution.

That's what we mean by *Imagineering*. It's a kind of flame lighting America to its future. Alcoa Aluminum is one fuel to make the flame burn brightly.

ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA ALUMINUM



MANUFACTURERS RECORD FOR



TODAY'S BATTLE CRY— "SPEED-UP!"

● Federal Roofs are saving countless man-hours of defense production, by enabling the building occupant to **MOVE IN WHILE THE ROOF IS BEING COMPLETED AND GET INTO PRODUCTION AT ONCE.**



Featherweight Precast CONCRETE ROOF DECK

AGAIN, American industry is calling upon Federal for help to get production going fast, and keep it going on the job of turning out defense orders.

The four Federal manufacturing plants, representing the largest unit in the field devoted solely to fabricating precast concrete roof slabs, are working at top speed to get defense buildings under roof fast, for immediate operation and to protect them fully, for the duration, and way beyond.

Modern, Featherweight Precast Concrete Roof Slabs are lightweight, permanent, fireproof and require no maintenance whatever—no painting, repairs or replacements. There is "no equal." Catalog and Details on request.

PROMPT SERVICE FROM OUR BIRMINGHAM, ALA. PLANT

1 LAYING THE SLABS—FAST WORK IN ANY WEATHER! Slabs are detailed to fit the steel accurately—no field work.



2 CEMENTING THE JOINTS — EVERY JOINT AN EXPANSION JOINT.



3 APPLYING THE COMPOSITION COVERING—IMMEDIATELY THEREAFTER. No waiting for roof deck to dry out—no interference with other trades.

FEDERAL AMERICAN ROOFING CO.

Chicago, Illinois



Foresight

FORESIGHT—call it what you will: prudence, forethought, or the provident use of resources—in business, as in military affairs, pays dividends. A board of directors can authorize expansion and direct management to build a new plant. A successful industrial engineer can design a workable plant, carefully planned to the last detail. But, in the final analysis, management's foresight, whether it is the considered judgment of one man or many, will determine the success of that expansion. Foresight must determine the location of a new plant, not only for the present, but for the inevitable post-war adjustment.

The Texas Gulf Coast has vast and

varied resources available to industry. The Houston Pipe Line Company has available unlimited quantities of NATURAL GAS for fuel supply, gathered by the company's far-flung pipe line system, strategically located across the length and breadth of the Texas Gulf Coast. With a view to the fu-

ture, let its Research Department compile a confidential survey of this region's resources and advantages, individualized to your company's processes and products. Address your request to Research Department, Houston Pipe Line Company, Petroleum Building, Houston, Texas.

For Victory Buy United States Savings Bonds

HOUSTON PIPE LINE CO.

Subsidiary of Houston Oil Company of Texas

Wholesalers of
Natural GAS

GEO. A. HILL, JR., President

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"Going Modern" with STEEL

insures a constant,
dependable service . . . and
lower maintenance cost!

IT is highly significant that many cities and municipalities in all parts of the country are specifying STEEL PIPE. This applies to new lines as well as replacements. Mounting experience proves that STEEL PIPE is the only water line material that offers dependable protection against the many uncontrollable hazards that affect operating economy and efficiency of water line systems. The high tensile strength and unusual ductility of NATIONAL Steel Pipe assure security against such dangers as: trench pressures, shocks, cave-ins, earth settlement, traffic vibrations, and other external forces.

NATIONAL Steel Pipe will not break or shatter! It costs less to lay because steel pipe is lighter and easier to handle. It is available in longer lengths, which mean fewer joints. Smooth interiors reduce friction loss and give full flow capacity. Pipe linings and coatings furnished in accordance with A.W.W.A. Specifications.



THE LONG-LIFE AND EFFICIENCY
of this Pennsylvania city's water system is secured by NATIONAL Steel Pipe. Here's the best possible protection against costly replacements.



Factors responsible for continued trend to Steel Water Pipe . . .

- 1. HIGH STRENGTH.** Withstands high pressures, heavy trench loads, vibrations, shocks, washouts, water hammer and other emergency stresses.
- 2. LONG LENGTHS.** Fewer joints per mile, faster laying, less damage to pavement, lower water loss.
- 3. LIGHT WEIGHT.** Saves freight and trucking charges. Speeds laying. Cuts laying costs.
- 4. SHATTERPROOF.** Eliminates sudden ruptures in case of fire and emergencies. Reduces property damage.
- 5. SMOOTH SURFACE.** Ideal for linings or coatings, where necessary. Greater carrying capacity.
- 6. LONG SERVICE.** Line after line is proving that Steel Pipe continues to give good service years beyond the original estimated service life.

NATIONAL TUBE COMPANY

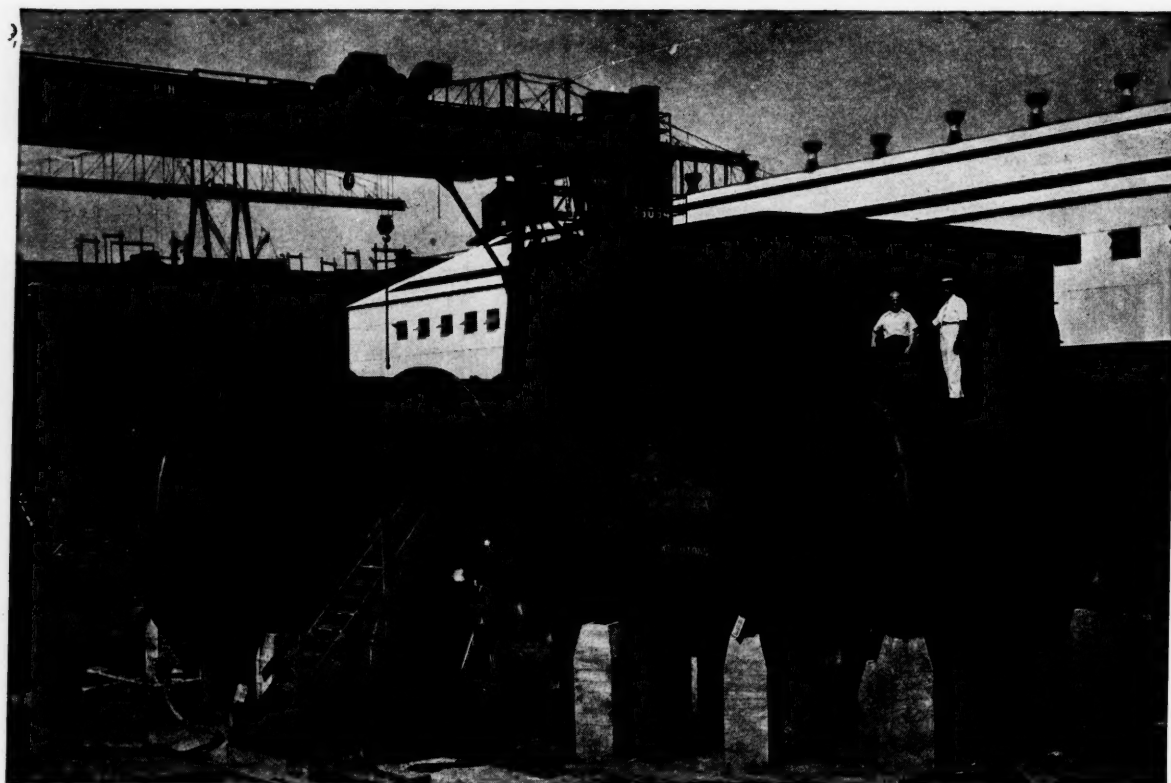
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Columbia Steel Company, San Francisco, Pacific Coast Distributors

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150,000 HP Francis Turbine for Grand Coulee Project

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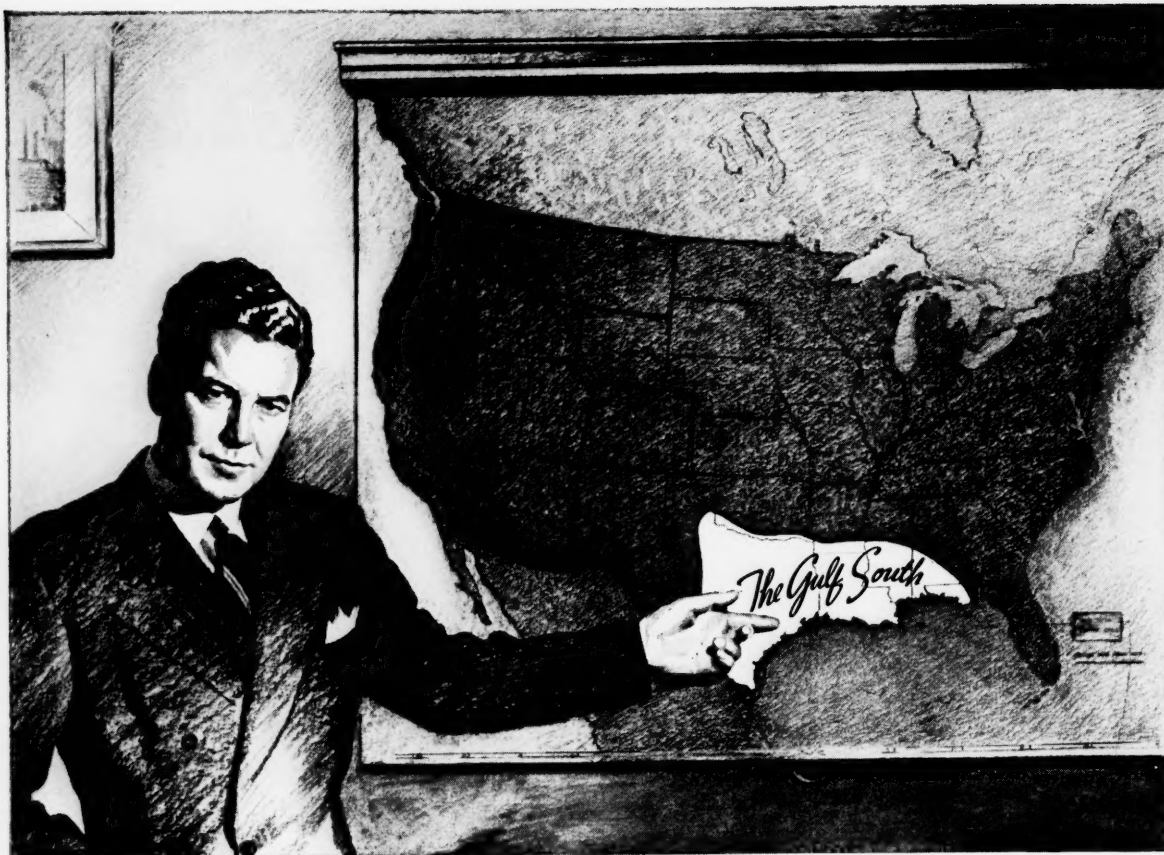


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HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS • PULLEYS
CUT AND MOLDED TOOTH GEARS • Y-BELT SHEAVES • ANTI-FRICTION
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FEBRUARY NINETEEN FORTY-TWO

19




America's Fast-Growing Industrial Area ... for Both WAR and PEACETIME Production

● Farsighted industrial leaders look to the Gulf South as a field for expansion for both war and peacetime production. They see in this rich and fast-growing industrial area greater opportunities for national service and at the same time make sound preparation for the peace sure to follow.

Here in the Gulf South you will find many advantages, including an abundance of the nation's No. 1 industrial fuel—Natural Gas. Other industrial

advantages include quick, convenient transportation by land, sea and air—reliable, intelligent labor—good schools—plentiful land—ideal living and working conditions in a pleasant year-round climate.

Let us give you more information on the Gulf South in relation to the requirements of *your* industry. Without obligation we will be glad to make a survey for you. Your inquiry will be kept strictly confidential.



**THE GULF SOUTH
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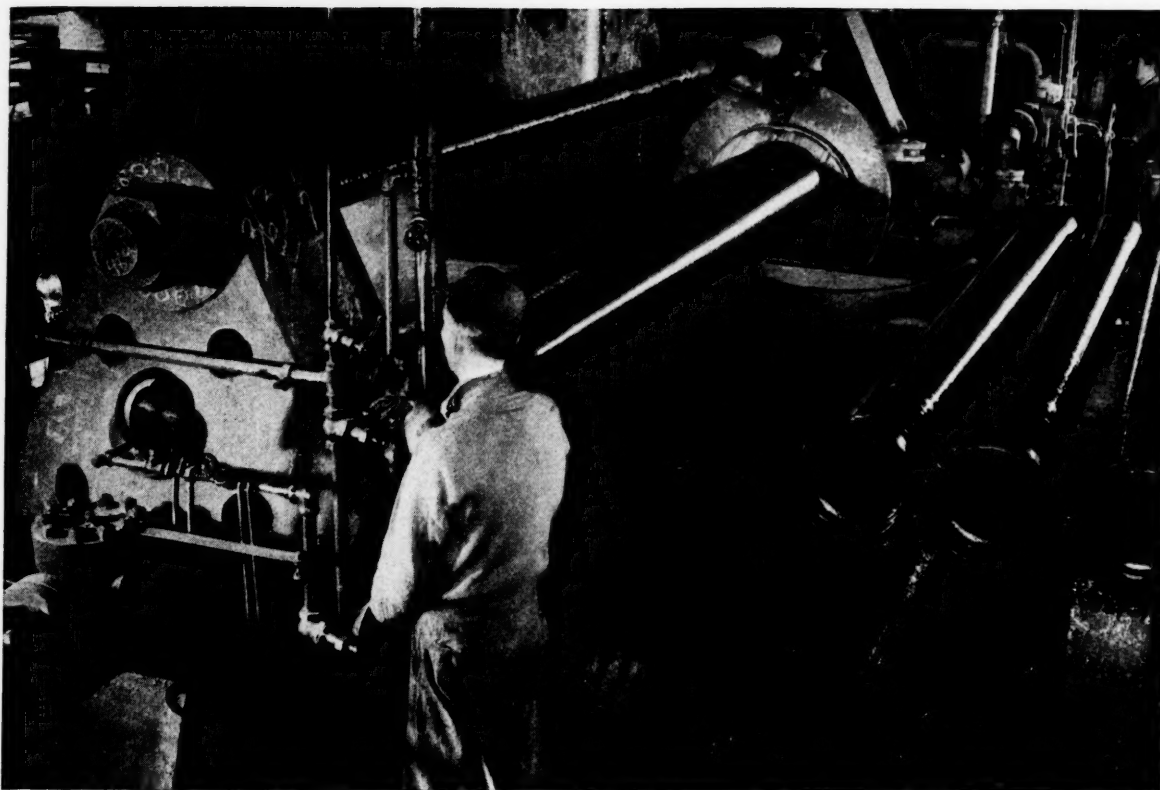
... industrial opportunities galore ... rapidly growing markets ... plentiful land ... ideal living and working conditions in a mild year-round climate ... good schools ... quick, convenient transportation ... abundant, dependable Natural Gas.

For information on GULF SOUTH opportunities write to
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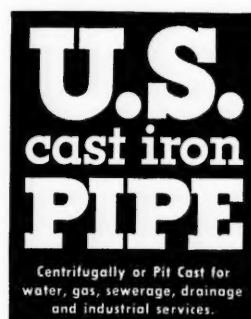
FOR TEXAS, Mail received at: Beaumont, Beeville, Dallas, Fort Worth, Houston, Longview, San Antonio and Wichita Falls. **FOR LOUISIANA**, Mail received at: Baton Rouge, Lake Charles, Monroe and Shreveport. **FOR MISSISSIPPI, ALABAMA and FLORIDA**, Mail received at: Jackson, Mississippi.

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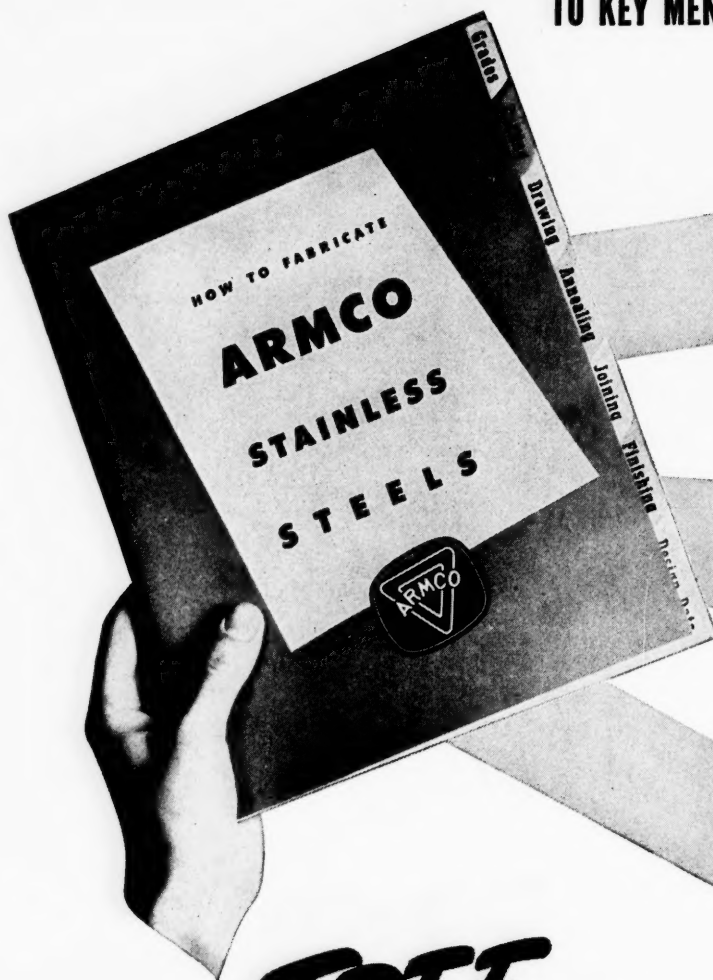


* The "Hydrostatic Proof Test," illustrated above, is an acceptance test for cast iron pipe. Every full length of pipe—whether for water, gas, sewer or industrial service—is subjected to this test before shipment. It is one of the routine tests made by this Company to insure that the quality of its pipe meets or exceeds the requirements of accepted standard specifications for cast iron pipe. *United States Pipe and Foundry Co., General Offices: Burlington, N. J. Sales Offices in Principal Cities.*

* One of a series of controls in operation at each of our plants, beginning with inspection and analysis of raw materials and ending with tests of the finished product, all subject to the central control of our headquarters staff at Burlington.



TO KEY MEN: Can You Use Sheet Metal Working Data for War—or Post-War Products?



FREE

A "TELL-ALL" BOOK ON STAINLESS STEEL FABRICATION

New men, new metals and new products. These are the triple-threats to top production as the Metal-Working Industry grapples with its strange task of "all-out" war. Naturally fabricating problems will arise. This is where ARMCO can be of service to superintendents, engineers and plant managers.

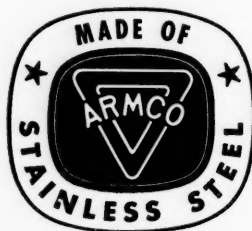
Among the vital metals being used in wartime work are ARMCO Stainless Steels. Perhaps some of your men are worried about how to fab-

ricate these strong, rustless metals. Here then are the "tell-all" answers to these shop puzzlers.

The new book, "How to Fabricate ARMCO Stainless Steels," contains specific information on the *latest* cost-saving methods. The practical,

easy-to-follow text tells about everything from blanking to buffing.

Whether you are manufacturing military equipment or thinking of products for brighter days, both the new and experienced men in your shop will want a copy of this valuable book. It's offered free *only* to men who work or intend to work with flat-rolled stainless steels. Please write on your firm letterhead. The American Rolling Mill Co., 181 Curtis St., Middletown, O.





FEBRUARY, 1943

When, a year from now, we look back on our way of living and our attitude towards life in February 1942 we will be amazed at the changes that have taken place.

At present we are just on the threshold of these changes but from our position on the stoop we are able to peep in through the partly open door and see, a hazy outline of the panorama of social conditions in our nation all out for war.

The first change we will note will be within ourselves. Gone will be the easy-going, devil-may-care outlook that has been so typically American for the past 20 years. It will be replaced by a grim, determined unity of purpose, tempered by a kindly understanding of our fellows that such a unity of purpose engenders.

We will also note innumerable material changes caused in a few cases by shortages but in many more by simplification. Sugar will be sugar whether it be granulated or pulverized.

Soap will be soap regardless of lack of delicate scent and fancy wrapper. Dehydrated vegetables and fruits will begin to replace canned goods in our grocery stores, and those canned goods surviving will have a strange and uniform look.

Simplification will be noticed, not only in the food and household essentials that we consume but in the clothing that we wear. Gone will be the myriad of styles and colors to be replaced by set patterns and hues. Shoes will be made for walking not for admiring.

So many of the little commonplace things of today will have changed or disappeared entirely that an enumeration of them would seem endless. There is no doubt but that our way of living will be greatly changed. But what will our way of working be like?

Agriculture and mining will be much as they are now but with an ever growing demand for

(Continued on page 25)

INDUSTRIAL DEPARTMENT • SEABOARD AIR LINE RAILWAY

SHORT CUT *to* FACTS

It is true that the South possesses outstanding advantages for manufacturing. This is evidenced by the tremendous industrial growth which has taken place in this area in recent years. However, not all communities in the South offer equal advantages for industry.

The South embraces an enormous area, with a wide variety of conditions. In this area, as elsewhere, a plant location is good or bad, depending upon whether it meets the requirements of the enterprise. In selecting a plant location, the correlation of available facts and their application to a specific enterprise require the services of an organization experienced in this type of work.

WE KNOW THE GOOD PLANT LOCATIONS

For many years we have made a careful study of this territory, during which time we have accumulated a great amount of information on plant sites, natural resources and manufacturing conditions. To responsible clients we offer an experienced and competent plant location service without cost or obligation. If some other state, or some community not served by our Line will best meet your requirements, we will frankly tell you so. In our dealings of many years we have made it our practice to adopt the industry viewpoint.

We cordially invite you to communicate with us with reference to your plant location problems. Ask us for detailed studies of suitable locations for your business in the Seaboard Southeast.

WARREN T. WHITE, GENERAL INDUSTRIAL AGENT,
SEABOARD AIR LINE RAILWAY, NORFOLK, VIRGINIA

FREE!

INDUSTRIAL
DEPARTMENT

SEABOARD

AIR LINE
RAILWAY

February, 1943

(Continued from page 23)

labor to replace that sent to the armed forces and war industries and to the demand for greater production.

Business, retail, wholesale and industrial will have undergone almost revolutionary changes in virtually every conceivable line.

Managers and clerks in retail stores will become combinations of stamp collectors, stock takers and accountants and last and we guess not least, salesmen, because after all they will have goods for sale.

Of all business classes, the wholesaler will notice the change more than any other. Individual brands and special sizes, trade names and unique features, the identification marks of competitive business, will be disappearing and their place will be taken by uniform products. The wholesaler will become a retailer servicing large commercial or institutional accounts.

Many industries will pool their resources of

materials, plants and even management and man power. This will be entirely true of the capital goods industries and of those consumer industries producing or processing goods used by the armed forces. Small companies will be turning out a large part of the goods that will be consumed by the civilian population according to standards and specifications either set by its industry group or by federal regulation. Industry's objective will be "produce more." Industry's headaches will be payrolls, taxes and a multiplicity of regulatory red tape.

Transportation of products from mill and factory to their destination will have become the number one national business problem. In spite of efficient management there will not be enough cars to handle the rail traffic. Synthetic rubber will not be produced fast enough to adequately augment the available supply of real rubber, and as a result swarms of trucks that should be working day and night will be laid up in storage. It is not a pretty business picture that we see. It is a war picture.

America's Enemies

We are at war with Germany, Japan, and Italy—not with Hitler, Hirohito and Mussolini alone.

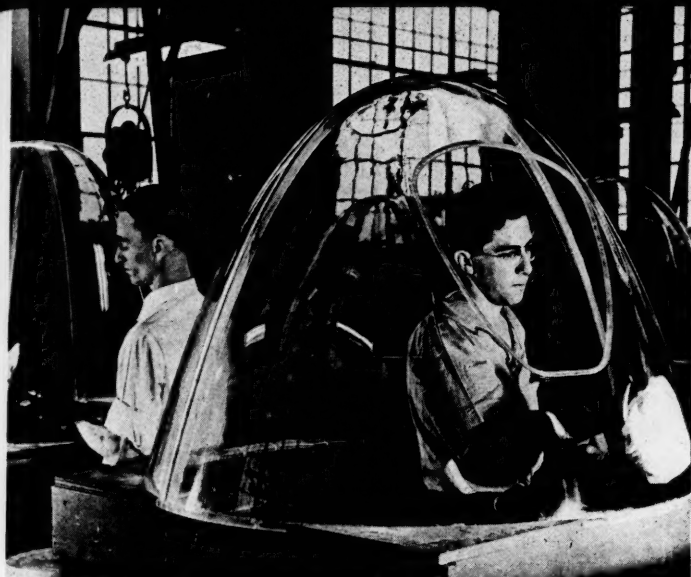
Some of us remember that we were supposed to be fighting the Kaiser in the last World War, but he ran to safety in Holland. The representatives of the German people pleaded for peace and signed the peace treaty. How did they live up to it? Almost before the ink was dry they were conniving in secret to violate every one of its terms. We have since seen them revert to autocracy under a cartoon character whom they worship.

Japanese aggressions for the past fifty years, every one of them marked by deception and treachery, prove conclusively that Japan and the United States can not live side by side in a peaceful, orderly and cooperative world.

Italy, the scavenger in the last World War when she thought the Allies would win, is now riding the coat tails of her ancient enemy—and gambling her future in the hope of gain from Germany's dastardly depredations.

History has repeatedly proven that the character and the moral fibre of a nation are accurately reflected by the acts of its government. Either people acquire their attitude toward life and living from their government, or their government acquires it from the people. In either case it must be regarded as an attitude supported by a nation as a whole.

We are at war. We are at war not only with Hitler, Hirohito and Mussolini, but with the people of Germany, the people of Japan and the people of Italy.



Polishing and buffing the plastic noses of bombers at a plant of the Rohm & Haas Company where chemists developed this crystal clear plastic.

"WHAT is not yet, may be." Plastics, solvents, textiles, lacquers, fertilizers—all from coal. Research on the chemical use of our foremost fuel may be expected to increase all these uses; to make available to American industry ever growing lists of pure organic chemicals in any desired quantity so that the chemical age can develop to its peak.

Nylon, Lucite, Neoprene, Ameripol, Durez, Plexiglas already are names to conjure with in the growing plastics age. They are names of the new synthetic materials which are taking a larger and larger place in the structures and mechanisms of the millions of things Americans use; tires, automobile bodies, gloves, gears, electric light push buttons, pipes, tubes, hoses, and hose; now coming more and more to our aid in replacing the metals that are needed for war materials.

All these materials, however different their final forms, have one thing in common. They are all compounds of the chemical element—carbon. They are products of organic chemistry,—but a new organic chemistry; one that has come out of the laboratory with its production of precious bits of rare chemicals, and now works its wonders in large scale plants; its processes, which used to be carried

out on a few grams of material, now are applied to tons, yes, to carloads.

Many of these new compounds are built up from gaseous by-products of petroleum refining; others are the children of coal or coal tar. Almost any of them could be produced from either parent; anything which contains carbon in an easily used form will serve the organic chemist as his raw material.

Coal tar was the earliest large volume source of the organic carbon on which the beginnings of the synthetic industry were founded and continues to supply a large part of its raw materials. Thus in 1940, more than 500 million gallons of tar were sold—311 millions for

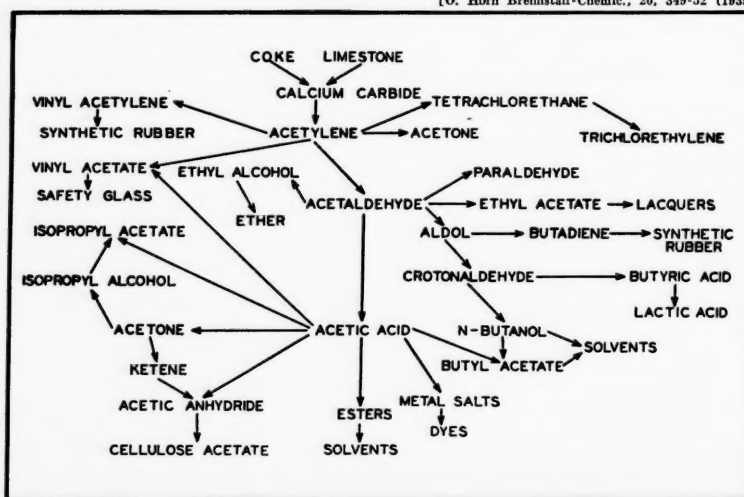
PRODUCTS from COAL*

refining into tar products—with a total value of over 16 million dollars; while in the same year, sales of light oil, the source of benzene, that pre-eminent solvent and intermediate, and of toluene, the base of TNT, amounted to nearly 178 million gallons with a value of 21½ million dollars.

Coal tar is the source of naphthalene which may be oxidized to phthalic acid whose esters are plasticizers and from which the Glyptal resins, used in lacquers and finishes are derived. It is also a main source of phenol and cresols, the first of which is one of the ingredients of the phenol-formaldehyde, or Bakelite type, resins. One of the newest uses of phenol is connected with that miracle resin, Nylon. Phenol can be hydrogenated to cyclohexanol which can then be oxidized to adipic acid. Adipic acid, when treated with ammonia, yields adipic acid diamide which after further treatment, condenses with an

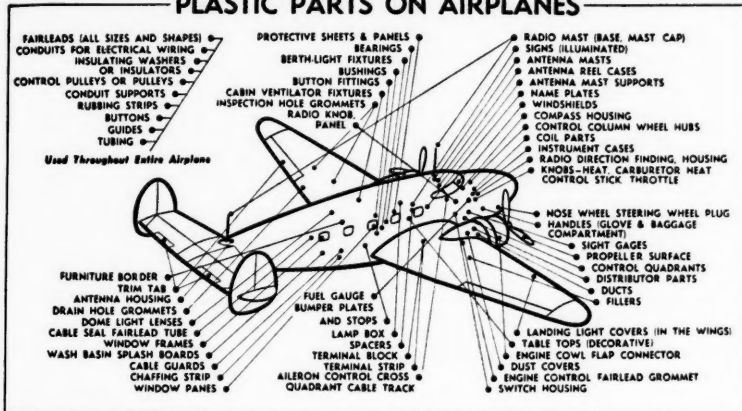
Figure 1. Carbide and Some of its Family.

[O. Horn Brennstoff-Chem., 20, 349-52 (1939)]



* This article was specially prepared for the Manufacturers Record by the Coal Research Laboratory Staff of the Carnegie Institute of Technology, Pittsburgh, Pa.

PLASTIC PARTS ON AIRPLANES



CHART—COURTESY OF E. I. DU PONT DE NEMOURS & CO. (INC.)

equal amount of adipic acid to yield Nylon polymer.

Petroleum has entered the picture of recent years as a source of toluene and, to some extent, of benzene and synthetic phenol. The simpler chemical nature of the compounds in petroleum has made it somewhat easier to separate the individual components on a commercial scale than it is to treat the heterogeneous mixture that is coal tar; in other cases, as exemplified by butadiene, the base for one of the synthetic rubbers, certain physical features of the refining process, such as the high pressure at which cracking is carried on, have facilitated the extraction of certain components from refinery gases which also occur in coke oven gas but are not now economically removed from it.

Coal tar as a source of chemical intermediates has also suffered from its position as a by-product of the manufacture of coke. Thus, the quantity available in any year depends on the magnitude of coke production in that year and thus on the activity of the steel industry, since 73% of the coke produced in 1940 went into the blast furnace for the smelting of iron ore.

It is evident that a stable supply of by-product tar and light oil for chemical production depended on the development of economically advantageous uses for coke in chemical production. This consideration, and the evident preference of chemical manufacturers for highly refined products, has led to advances in the chemical use of coal. These have taken two directions; in one, coke is used as the

starting material, thus providing a stable outlet for the principal product of carbonization; while in the other, in procedures which are still in the experimental stage in this country, the whole coal is processed so that no by-product outlets need be sought.

In one of the coke-using processes, the coke is charged with limestone to electric furnaces, producing calcium carbide which, on addition of water, yields acetylene. Thus, the whole coke has been reduced to a single chemical entity, ideally adapted to utilization in chemical processes. Most of us are familiar with the production of acetylene from carbide and water, if only from boyhood enthusiasms, untempered by knowledge, leading to the invention of crude acetylene generators and lamps—most of which blew up in our faces. But acetylene is not only a good fuel for lamps or cutting torches; it may serve as the chemical progenitor of a host of useful products, some of which are shown in Fig. 1. Outstanding among these are trichlorethylene, an extremely useful cleaner and solvent, which is fireproof; the various acetic acid esters, several of them being solvents for the improved lacquers which make our cars gleam, even after years of use; acetic acid anhydride which reacts with purified cotton cellulose to produce rayon for yarns; vinyl acetate, the immediate progenitor of Vinylite, a flexible transparent plastic used in ladies' shoes, belts, and other wearing apparel; and certain synthetic

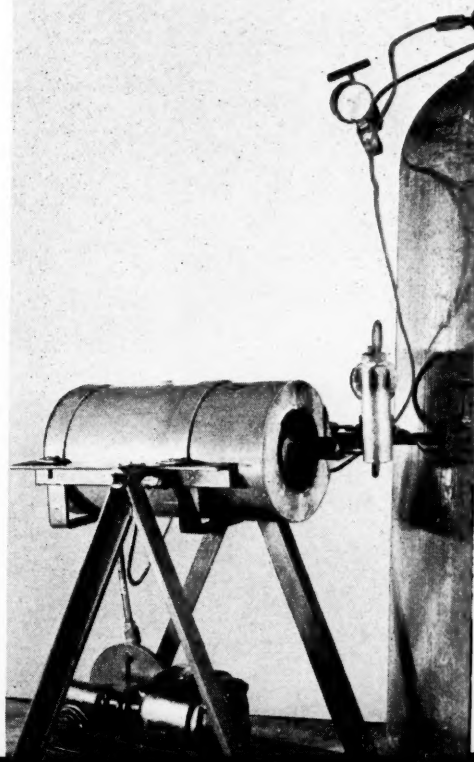
Right—A laboratory bomb for the oxidation of coal to organic acids.

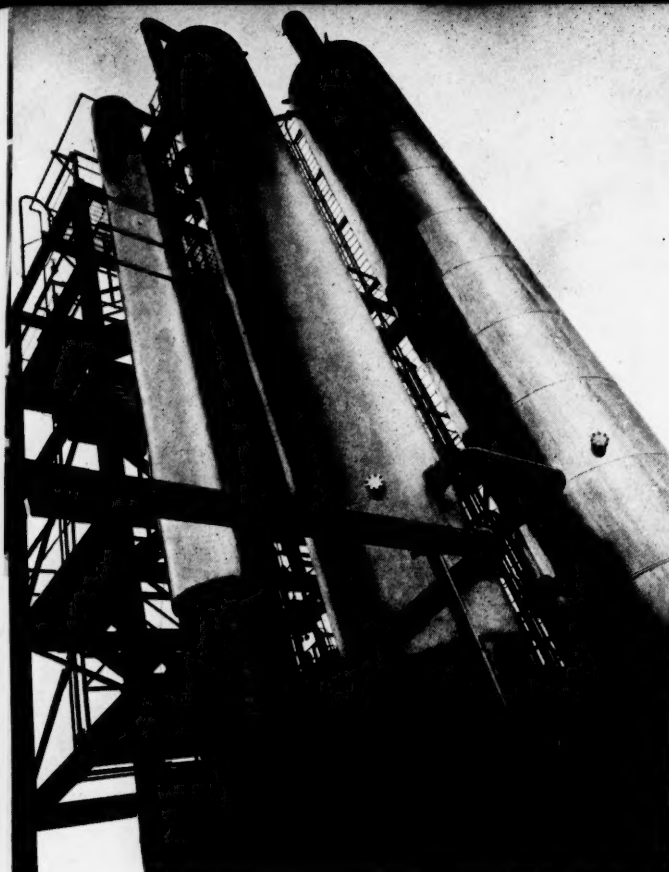
rubbers such as DuPont Neoprene and Goodrich Koroseal.

A less expensive method of reducing the carbon of coke to a chemically homogeneous material is by way of the water gas process, producing carbon monoxide and hydrogen. This is the same process as is used for making manufactured gas for illumination and heating, but it is carried out in greatly improved generators of much greater capacity and reliability than were available ten years ago. Water gas used for general distribution is usually enriched with cracked petroleum or tar gases to provide greater heating value and illuminating power, but when used for synthesis this carburetion is not carried out.

Once the water gas is formed it may be used in several ways. The greatest utilization of coal in purely chemical production in this country is carried out through the alcohol synthesis by the DuPont plant at Belle, West Virginia. In this case the carbon monoxide and hydrogen are caused to react together in great catalytic converters at elevated temperatures and pressures to form alcohols. Of these, methyl alcohol is familiar as what used to be called "wood" alcohol; it is used as anti-freeze in auto-

(Continued on page 64)





The following articles comprise part two of a summarization of the development of war industries and army construction since the defense program started in the South. A major part of this has been undertaken during 1941. It is coupled with the development of other industries in the South during last year. As a matter of fact, many of the war industry plants are built and operated by private enterprise as permanencies in this region. For clarity and convenience the account has been divided into nine classifications. Five of these—ordnance, aircraft, ships, power and steel, appeared in the January Manufacturers Record. The remaining four sections—light metals, chemical process industries, army construction and petroleum are presented here.—Editor.

PETROLEUM

Mechanical warfare has focused the spotlight on the petroleum industry. Notable for continued efforts toward more efficient production and lower cost, the processors of the liquid gold which is so plentiful in the South have placed their shoulders to the wheels of war by not only expanding gasoline and oil facilities but also by establishing new operations to make the ingredients used in compounding high explosives.

Toluol is one of these ingredients. Formerly made most extensively from coal tar, this T. N. T. constituent is the product of several new plants in the Texas area. Two companies have rushed to completion the plant necessary to turn out this member

The South's War Effort and Private Industry

Part II

by

S. A. Lauver
News Editor

of the benzene family, heretofore obtained from by-products of coke and from ordinary illuminating gas.

Work on the new plant of Humble Oil & Refining Co. was started early in February of 1941. The first tank of nitration grade toluol was shipped October 23rd. The plant, known as the Baytown Ordnance Works, is the property of the United States Government. It is being operated for the Army by the Humble Company.

Erection of this and other plants was the result of conclusions formed several years ago by Ordnance Department experts that the supply of toluol from existing establishments and processes was insufficient. During the first World War the shortage of toluol was one of the acute "bottlenecks." Essentially pure toluol is obtained normally from coal tar distillate made when coal is heated to produce coke. Small quantities, however, were extracted back in 1918 from crude oils and cracked naphthas.

Considerable research had already been done in the field of synthetic conversion and extraction in the effort to broaden the use of petroleum and its products, specifically to improve gasoline quality. Earlier laboratory work in the extraction of aromatic solvents from naphthas had foreshadowed the

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possibilities or separating toluol of the necessary purity.

Army authorities were interested. Military needs for large supplies of toluol for national defense could be supplied, if the method could be commercially developed to produce the necessary quantities. Standard Oil Company of New Jersey appropriated \$150,000 for experiment work. To avoid delay and expense involved in construction of a pilot plant, three different refineries were used in the cooperative program.

The toluol project was one of many contributions of the petroleum industry to national defense, then, war now. The existing network of pipelines which cross and crisscross the country were substantially added to projects started before the "gasoline shortage" was developed by Interior Secretary Ickes. Two of these were the Southeastern and Plantation lines.

Port St. Joe, on the west coast of Florida was the water terminal of one of the lines. From this sheltered harbor off of the Gulf of Mexico, with its potentialities as a fleet base, the pipe stretches 350 miles to Atlanta, in middle Georgia, and then 108 miles further to Lookout Mountain, near Chattanooga. Capacity of its six- and eight-inch pipe is 30,000 barrels of petroleum products daily.

Two big oil companies were responsible for finishing this line built by Southeastern Pipe Co., backed by Pure Oil and Gulf Oil companies. Right-of-way difficulties were encountered. A special act of Congress was required before the pipe could finally connect the Georgia metropolis and the historic Florida town, which once was a leading seaport. Its claimed distinction is the first railroad in America—a wooden rail line over which slaves pushed flat cars of tobacco and cotton from the inland.

The Plantation line extends further, in fact 1,261 miles across six states and into a seventh. It will serve an area of 279,600 square miles, or nine percent of the country's total. Approximately

123,000 tons of steel pipe ranging from four to twelve inches in diameter have been laid from the Louisiana terminal at Baton Rouge through Mississippi, Alabama, Georgia, South and North Carolina.

Fifteen pumping stations will keep the 60,000 barrels of petroleum products pulsating through this system of steel arteries to serve a territory where army posts are numerous, where airfields suitable for bomber plane landings are many. The petroleum products are kept "boosted" at a pressure of 950 pounds per square inch by these "mechanical hearts" on the journey to Greensboro.

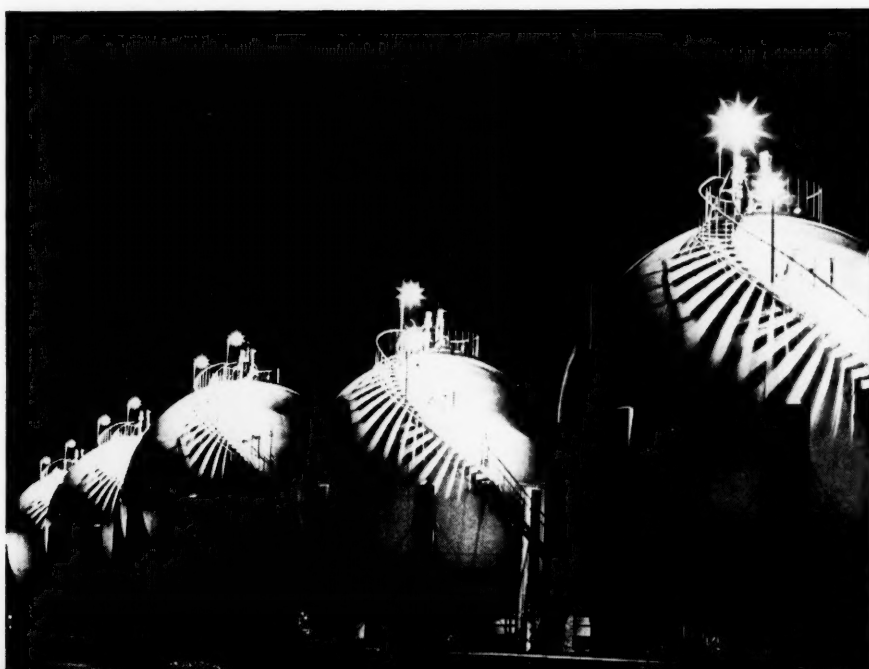
Sixteen intermediate terminals will insure widespread distribution of gasoline and other refined products in an area where there are 2,300,000 trucks, buses, passenger cars, and tractors, exclusive of the thousands in use by military and naval activities. These alone require about 47 million barrels of gasoline yearly. The new line can deliver almost 22 million barrels annually with a peak of practically 35 million barrels made possible for installation of several additional booster stations.

Pipelines are transportation facilities, just the same as trucks, railroad cars, ships. The Plantation line will release 10 tankers from the Gulf Coast runs. Two others are made available for other purposes by the Southeastern project. The proposed Texas to New York line, which was vetoed by the Government, was to have a capacity of 65 tank ships. The 1,050-mile line now proposed from Wichita County, Texas, to Savannah, Ga., would displace 12 vessels, making them available for naval and military use.

Texas, Oklahoma and Louisiana, which in the order named, produce most of the Southern petroleum, also account for many of the expansions in refining. One of the most recent was a \$3,000,000 gasoline and recycling project for the Katy field, about 20 miles west of Houston. Eleven companies joined with Humble Oil & Refining Co. in getting

(Continued on page 68)

The value and importance of the South's petroleum industry cannot be overemphasized in the present emergency and in normal times. Producing more than half the country's entire output, the South is the home of petroleum refining and a large part of those vast industries dependent upon petroleum. At right is a typical scene of storage tanks at Port Arthur, Texas. On the opposite page is one of B. F. Goodrich Company's solvent recovery units at a plant manufacturing Koroseal, a synthetic rubber in which petroleum plays an important part.



The South's War Effort (continued)

LIGHT METALS

The output of the South's aluminum and magnesium plants can be numbered among the Nation's most important. However, though aluminum has been produced in Tennessee for a comparatively long time, it is practically a newcomer to Alabama; and the new industry is about to be born in Arkansas.

Aluminum Company of America's \$200,000,000 Expansion

The contractor is now completing the preliminary grading and clearing for the Aluminum Company of America's \$21,000,000 alumina plant to be constructed in Arkansas between Bauxite and Bryant, in Saline County. The location is about 22 miles from Little Rock. Capacity of the new plant upon its completion will be about 400 million pounds annually. A \$33,000,000 aluminum plant is also being built and operated under a five-year lease by Alcoa. Power will be obtained from a steam plant yet to be built.

The Aluminum Company is a pioneer in American light metals. Its interests are now country-wide. Mobile, where the alumina reduction is carried on and where extensive expansion is now going forward, was selected back in 1937, six years after the country's first aluminum plate mill was finished at Alcoa, Tenn., important seat of the Southern aluminum industry established in 1913. Badin, N. C., is the other Southern point for making the silvery metal.

More fabricating facilities are being built at Alcoa under a program involving a \$200,000,000 expenditure of privately financed money. Others are located at various of the company's plants and are designed to increase the output of castings, sheet,

tubes, screw machine products, rivets, extruded and rolled shapes, rods and bars, and forgings. The two North Carolina hydroelectric projects, one of which was finished last fall and the other now under way, are part of this program.

760,000,000 Pounds of Aluminum Annually by July, 1942

Ingot aluminum production last year far surpassed that in the previous twelve months. By July, 1942, it will reach the production rate of 760 million pounds annually. The Defense Plant Corporation in August made a contract with the company to construct and operate the Arkansas alumina plant, annual capacity of which is placed at 400 million pounds and which may be increased to a billion pounds. The Arkansas metallic aluminum plant will be one of three established under the agreement.

Reynolds Metals Company is practically a newcomer in producing the featherweight metal. Its latest development is a third aluminum plant at Listerhill, Ala., in the vicinity of first world war built Muscle Shoals project. The company already owns and operates an alumina plant and an aluminum plant there with a production capacity of 40 million pounds of virgin aluminum annually.

In addition to actual aluminum manufacturing the company engages in producing a variety of aluminum parts and shapes, operating 30 plants in seventeen cities, practically all of which are working on national defense. The company's west coast plant went into production in September, about four months after the Alabama plant was described as an industrial miracle because it started operating less than six months after ground was broken.

Source of Aluminum

Aluminum originates in bauxite ore, and much of our supply of the ore comes from Dutch Guiana.

One of the loopholes in defense of the Caribbean Sea, through which this essential material for war plane manufacture must pass, has just been closed by conclusion of an agreement with the French High Commissioner at Martinique, where a French aircraft carrier and other naval ships of doubtful element have been moored. A vital link in this scheme is the fleet of the Alcoa line, which bring the precious ore to the Alabama coast for reduction to alumina powder for trans-shipment to Alcoa, Tenn.,

Processing aluminum ore in a Gulf Coast plant. These storage tanks hold a liquid solution which is accumulated during one of the stages of converting bauxite into aluminum ore.



OEM Defense Photo

Massena, New York, the west coast and other points where the metallic aluminum is made from it. Tenth of a \$25,000,000 fleet of eleven new ships for the "aluminum" line was just recently launched.

However, the United States is also a source of bauxite, all known deposits being located in the Southern states and the largest one in Arkansas. For several years bauxite has been commercially produced in the South, the demand then being greater than even now that economical methods of refinement have been developed.

Converting Bauxite Into Aluminum

Two steps must be taken to obtain the metallic aluminum. First the ore is converted into a powder called alumina. This can be accomplished either by chemicals or electric furnace. Freeing the alumina of oxygen—the second step—is done by passing an electric current through the fine white powder. For each ten pounds of aluminum freed by the process 100 hours of electricity are required. Previously, much of the aluminum was made by utilizing secondary power. Now, however, the war effort demands that primary power be available every day in the year—not just when the rains are plentiful and the storage reservoirs full.

Magnesium From Sea Water

Most remarkable is the production of magnesium at Freeport, Texas, where Dow Chemical Co. has dipped into the waters of the Gulf of Mexico for the metal to make the castings for aircraft engines and parts. Two plants for this purpose are already operating there. A third is being built. All three are estimated to involve expenditure of more than \$52,000,000.

This is not the first time Dow has moved to extract riches from the limitless resources of the ocean. Only a few years ago a plant was completed at Kure Beach, near Wilmington, N. C., to process sea water and segregate the bromine for use in making knockless gasoline. This was large scale pioneering in the chemical industry.

Dow is the more familiar name in the Southern magnesium field; Union Potash Co., a subsidiary of International Agricultural Corp., the recent entrant. This organization under a Defense Plant Corporation contract will build a dolomite plant and a large factory for processing the magnesium extracted from the dolomite. About two-thirds of the ore will be obtained from central Texas, from whence it will be shipped to Austin.

The Texas capital was chosen for this important defense industry, according to reports, due to the availability of low cost electricity generated by the Lower Colorado Authority, a State of Texas agency which has expended many millions of dollars for developing the potentialities of the river after which it is named. Other considerations, besides power, railroad and highway accessibility, were an abundance of natural gas and a large water supply.

An early date has been set for building the third



TVA from OEM

Above—Aluminum sheet rolling mills at the Alcoa Tennessee plant of Aluminum Company of America. Below—Checking electrolytic plates in the manufacture of manganese at the plant of Electro Manganese Company, Knoxville, Tennessee, which is working on National Defense orders for alloy materials.

magnesium plant at Velasco for Dow Chemical Co. It will cost \$52,000,000 and is being financed by the Federal Government. Its construction is requiring 5,000 men and its function, as in the case of the other two already in operation, will be recovering the magnesium from sea water at the rate of 72 million pounds a year, or twice the capacity of the others. Mathieson Alkali Works will probably start next year on construction of a \$24,000,000 magnesium plant at Lake Charles, La.

The two methods of extracting magnesium necessitate the use of electricity. Electrolytical segregation from magnesium chloride, in which the chlorine is removed, is similar to the aluminum process. This takes about 12 kilowatt-hours to produce one pound of magnesium. About 10 kilowatt-hours are used to make magnesium from magnesium oxide in the electric furnace.



The South's War Effort (continued)

ARMY CONSTRUCTION

A conception of the extent of Army construction* can best be obtained by quoting from a recent address of Brig. Gen. Brehon B. Somervell, assistant chief of staff of the War Department's supply division. Just how extensive the Army Building program is, may not now be stated in so far as regional identification is concerned, but it is commonly known that a major part of the work is located in the southern states.

At the time the General spoke—and the situation has not changed sufficiently to materially affect his remarks, the Army temporary emergency construction represented expenditure of approximately \$3,500,000,000. About \$2,500,000,000 worth of the work was under the Army's Corps of Engineers.

"It is strictly an Army building program," he pointed out, "performed principally by civilian labor but under Army supervision and for Army use. It is essentially an operation of military engineering. Every phase of it is designed to supply critically needed facilities or material for military purposes." When it was begun the selective service act had not been adopted. "It was a pretty big order that Uncle Sam laid on the desk of Major Gen. Edmund B. Gregory, Quartermaster General." In fact, "it was tantamount to saying something like this:

Troop Requirements

"Build me 40 or 50 troop-cities right now, beginning tomorrow. There's no time for shopping around for sites or dallying over designs. Nevertheless, I want them thoroughly up-to-date, equipped with all modern conveniences and provided with every known municipal utility necessary for public health and sanitation. Don't skimp; just hurry!

"While you're at it, there are some odds and ends I'd like attended to, also. I need about 30 reception centers, to take care of the selectees; a score or so of replacement training centers, where they can get preliminary training; about nine big general hospitals for the use of the Army as a whole; seventy or eighty fields for the Air Corps; somewhere around 50 harbor defense jobs; and a hundred or more housing developments for defense project workers. Now get busy!

* Six days after General Somervell outlined the work being undertaken as part of the national defense program, the War Department issued an announcement that all Army construction would be consolidated under the U. S. Army Engineers.

Ordnance Needs

"And, oh yes! Our soldiers have got to have something to shoot with when they get into training. Rush 48 munitions plants and ordnance factories of one kind or another into production as fast as you can hammer them together. Just for a starter, give me three smokeless powder plants, half a dozen shell-loading plants, a tank factory, an armor plate factory, an assorted variety of TNT, toluol, ammonia, bag-loading and small arms ammunition plants, a rifle factory and maybe some more I'll think of as need arises. And no loafing on the job; we want these things in a hurry! Time is short."

General Somervell then outlined the tremendous task. "In the case of the Construction Division," he asserted, "it meant an expansion of not merely seven, but seventy-fold, in administrative personnel. It meant the reorganization of the Washington office into a streamlined group of five instead of eleven separate branches. It meant the decentralization of the administrative force on a national framework by the establishment of nine construction zones, corresponding in territorial boundaries and extent with the nine corps areas of the Army, each administered by a Zone Constructing Quartermaster equipped with a staff of technical advisers and experts.

Constructing 500 Separate Projects

"It meant the calling into service by telegraphic summons of hundreds of reserve officers from far and near at a moment's notice. It meant the construction of upwards of 500 separate projects located at 250 different stations, each of which, with few exceptions, was under the supervision of a constructing quartermaster, charged with the responsibility of seeing that no obstacle whatsoever, human or physical, be permitted to stand in the way of quick completion of the job. It meant the negotiating of contracts with hundreds of architect-engineers and constructors before specifications were drawn or blueprints were dry. It meant the employment of nearly half a million men at one time, in a *blitzkrieg* of building that almost overnight changed part of the countryside of America from the pursuits of peace to the activities of an armed camp."

General Somervell described these troop housing facilities as citadels of democracy. "The troop housing assignment was the first item of business on the list. Camps and maneuver areas adequate for the mechanized tactics and rolling stock of today were fundamental to the training of an Army. In the first World War, our soldiers were hastily assembled in overnight stations, as it were, and



U. S. Army Signal Corps Photo

then ferried overseas for their training abroad. But that was during war. This time the nation was at peace, intent only on preparing for national defense, an obligation resting upon any self-respecting people but tragically neglected by America during the last quarter-century.

50 Major Troop Towns Built in Nine Months

"Within nine months fifty major troop-towns, ranging in capacity from 15,000 to 65,000 men each, were built and functioning, essentially complete in all the primary requisites for comfortable living and sound training. When dirt really began to fly in October, 1940, the Army had quarters for but 300,000 troops. When June 30, 1941, arrived, the Construction Division had provided housing for more than 1,200,000. This was for 248,000 more troops than had been then inducted into service.

"Many months before final occupation date, these camps and cantonments were actively functioning as training centers. Troops occupied them progressively and large bodies of soldiers were in training in some of the southern camps well in advance of the first of the year. Troop inductions were consistently greeted with surplus accommodations. As of October 15, 1941, the entire housing program was estimated to cost \$970,000,000, providing complete facilities for quartering 1,500,000 officers and enlisted men. The number, the variety and the quality of the structures and utilities have never before been approached by any similar effort on the part of any nation."

Ordnance Plants Completed in 12 to 14 Months

Great ordnance manufacturing plants, the chemical warfare projects and the magazine and storage depots were distributed throughout the country

This section of Fort Sam Houston at Texas, is but one of the fifty major troop towns, ranging in capacity from 15,000 to 65,000 men each, that were built and functioning within nine months after selective service went into effect. When construction started in October, 1940, the Army had accommodations for only 300,000 men. When June 30, 1941, arrived, housing had been provided for 1,200,000 men. With war declared and a large Army in the offing, construction on an even larger scale is now underway.

within twelve or fourteen months in the race to out-produce as well as out-fight America's enemies. The whole interior of the nation was transformed into a vast network of great munitions factories. "These are the only arguments that can stop a panzer division or a bombing squadron."

Over two-score of huge ordnance manufacturing facilities went into production. Several were brought into operation not merely weeks, but months ahead of schedule. The great majority were but vacant fields twelve months before. Today, they are producing TNT and DNT, anhydrous ammonia, smokeless powder, toluol, shell forgings, small arms ammunition, armor-piercing cores for shells, armor plate, chemical warfare material, machine guns, rifles and tanks, while others are loading shells and powder bags. Others have been recently authorized and still others are planned.

\$700,000,000 for 125 Air Corps Projects

"Out of the \$1,600,000,000 allocated to the Engineers for expenditure in the present fiscal year," summarized General Somervell, "approximately \$700,000,000 is for 125 Air Corps projects." The Army engineers were commissioned to finish 81 air field jobs originally undertaken by the construction division of the Quartermaster General's office. One of the most important assignments, in addition to these many other responsibilities, was construction of four immense bomber assembly plants, two of which are in southern territory, at Tulsa, Okla., and Fort Worth, Texas.

The South's War Effort (continued)

CHEMICAL PROCESS INDUSTRIES

Whatever speculation there may be about plants now being rushed into production surviving the aftermath of the current expansion for war, on one point is there agreement—that the products of the chemical industries can be transformed into peace-time necessities.

Officials of great chemical concerns are already directing their attention to the peace-time possibilities for newly established factories. They point to continuation of such communities as Hopewell, Va., Nitro, W. Va., Muscle Shoals, Ala., as examples of such operations. The Kanawha Valley around Charleston, capital of West Virginia, and Anniston, Ala., are others which bloomed in 1918 and did not suffer the fate of the "deserted village."

Expansion of the Southern chemical industry has been of substantial proportions. Wealth stored by nature in the fields, forests and mines has strengthened this development. A still greater share for the South in the country's chemical progress is expected. Back in 1918 when the United States was forced to break suddenly from foreign sources of chemical supplies, the chemical industry on this side of the Atlantic stepped into the breach and the South did its part.

Difficulties in the East Indies and Malayan States have resulted in the Supply Priorities and Allocations Board approval of tripling this country's present synthetic rubber production program, subject to detailed examination by the Division of Priorities to make certain that sufficient materials can be provided for construction and operation of the new plants.

This action is designed to give the nation an annual production of 120,000 tons of synthetic rubber. Productive facilities for this product now un-

der construction will have a capacity of 40,000 tons per year. Plans now under consideration for additional synthetic rubber plants will make the United States reasonably independent of the natural product.

Monsanto Chemical Co. has announced a project by which a \$2,200,000 synthetic rubber chemical plant would be built at Galveston, Texas.

Baton Rouge, La., is the seat of important Southern activities in this direction. Standard Oil Company in July announced construction had begun on a group of new synthetic rubber and chemical plants adjoining the company's refinery there. The development involves a related group of plants with a total investment probably running into the neighborhood of \$12,000,000 or \$15,000,000.

Output of the new plants will be 15,000 tons of materials for synthetic rubber, and 20,000,000 gallons of alcohols. The principal rubber raw material will be butadiene, which is expected to be used partly by the Buna rubber plants of Firestone and United States Rubber companies. Synthetic rubber production will include about 2,000 tons of Butyl rubber a year. The project forms an important part of the defense program and provides an increased supply of chemical solvents for the munitions industries, in addition to the synthetic rubber. It is privately financed.

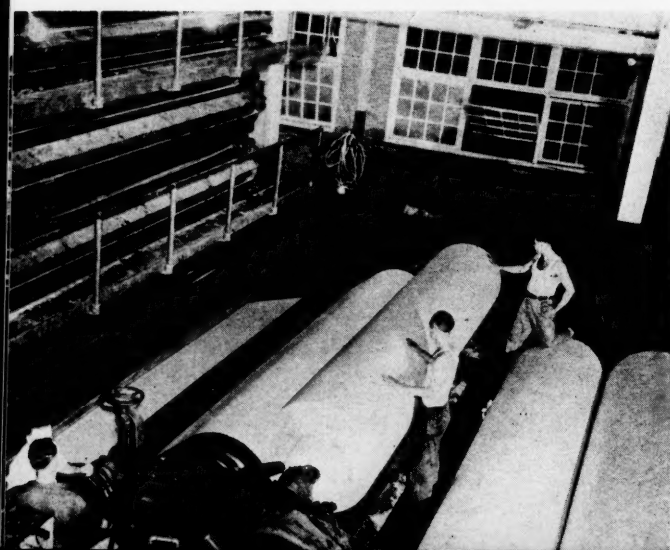
Reports are current at Texas City, Texas, that the recently purchased plant of the Texas Sugar Refining Corporation, a \$6,500,000 layout, will be used for defense purposes, perhaps for producing synthetic rubber. Shell Oil Company, Inc., of Houston, early in the year let contracts for facilities at its Deer Park refinery. Costing \$4,000,000, the new unit is to produce butadiene, synthetic rubber's basic ingredient.

B. F. Goodrich Rubber Co. is rushing on a \$2,750,000 plant at Louisville, Ky., to produce synthetic rubber. DuPont operations are also located at this Kentucky City. Estimated cost of the new National Carbide plant for synthetic rubber at Louisville is \$1,000,000.

Plastics

The manufacturer of plastics is finding in the Southern states a natural field for expansion. These synthetics have found their way into such a variety of uses that would take pages to print the list. They extend in variety from materials needed by the armed forces, to the requirements of milady's dressing table. The bombardier sits in the plastic nose of his modern bomber, and the women of America use boudoir accoutrements made of the

Pulp and paper making is one of the South's largest chemical process industries with an investment close to \$250,000,000 and products valued annually at about \$200,000,000. At left is shown the calender stack and reel end of a recently installed paper machine.



same synthetic material. Entire wardrobes can be made by test tube and retort. Their place in the defense program is wide and varied. Their use has just been approved for pistol grips, machine gun slide handles and bayonet handles. The agricultural yields and natural raw materials of the South are destined to find a large place in the requirements of this rapidly growing industry.

One of the points where plastic materials are made is the "magical island" at South Charleston, W. Va., where Union Carbide and Carbon Corporation maintains its maze of chemical projects in what is perhaps the greatest concentration of such activities in the country. DuPont, whose operations spread throughout the South, National Lead and Westvaco, are other names prominent in the Kanawha Valley development which is one of the constructive aftermaths of the last war.

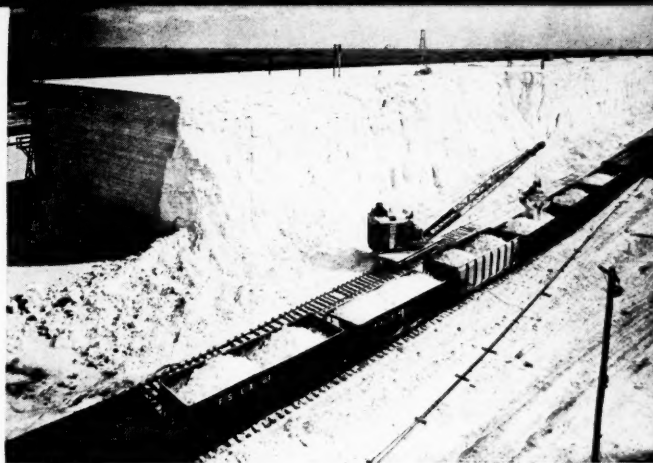
Paper and Pulp

Paper making in the South has assumed major proportions within the past decade. Resembling the Southward trek of textile plants of an earlier period, the manufacturers of paper and pulp seemed suddenly to awaken to the possibilities of Southern pine after the practicabilities had been demonstrated by the pioneering efforts of Dr. Charles Herty.

Hundreds of millions of dollars have been invested in Southern paper plants since the big Union Bag and Paper mill was established at Savannah about five years ago. The latest project is an expansion program to cost \$4,500,000 at the South's newsprint factory located at Lufkin, Texas.

Rayon and Nylon

For some years rayon has been one of the South's most important industries. But also, the South's rayon production has comprised the major part of the entire country's output. The past year marked another milestone in this industry's history when the American Viscose Corporation put into opera-



This sulphur storage yard in Texas is a reminder that the South is the source of nearly all this country's production and its importance cannot be overemphasized as sulphur enters into nearly every form of manufacturing. The value of sulphur mined in the South exceeds \$40,000,000 yet it is only one of the many non-metallic minerals of the South coming into great use as a result of chemical developments. Below is shown the new nylon plant of E. I. du Pont de Nemours & Co., at Belle, W. Va.

tion at Front Royal, Va., America's largest viscose rayon producing unit. When this plant reaches full capacity its output will aggregate 50,000,000 pounds and provide employment for approximately 2,000 people. This is but one of the several expansions undertaken by southern rayon plants that will bring the region's total output to more than 500,000,000 pounds according to estimates. In 1939, nine plants in two states, Tennessee and Virginia, the value of products amounted to nearly \$120,000,000 or about half the nation's total. If these figures were brought up to date and added to those of the other rayon plants in Maryland, West Virginia, North Carolina and Georgia, it is believed the total would exceed the entire country's output value of \$247,000,000 in 1939.

Further expansion of the nylon yarn capacity of duPont was announced late in November. Facilities at Belle, W. Va., where nylon intermediates are made, will be rounded out. The additional capac-

(Continued on page 66)

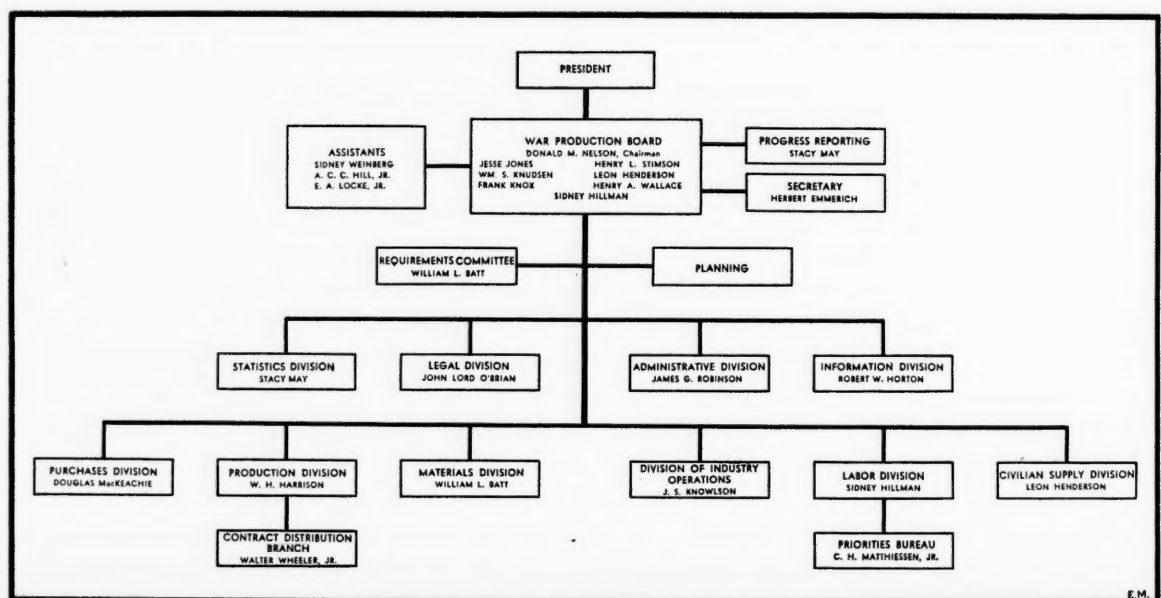


THE WAR PRODUCTION BOARD—and



The new War Production Board as it assembled for its first meeting in the conference room of the new Social Security Building on January 20, 1942. Members and their alternates seated left to right are: Leon Henderson, Director, Civil Supply Division; James Forrestal, Under Secretary of the Navy; Jesse Jones, Secretary of Commerce and Federal Loan Administrator; Frank Knox,

Secretary of the Navy; Donald M. Nelson, Chairman of the Board; Henry A. Wallace, Vice President and Chairman of the Board of Economic Warfare; Robert P. Patterson, Under Secretary of War (alternate for Secretary Stimson); William S. Knudsen, Lt. Gen., United States Army. Standing at right is John Lord O'Brien, General Counsel of the Board and at the left is Herbert Emmerich, Executive Secretary of the Board.



and ITS INDUSTRY DIVISION HEADS



Douglas C. MacKeachie, chief of the Purchases Division, was New England Purchasing Director of the Atlantic and Pacific Tea Company when he came to Washington in October, 1940, as Assistant Coordinator of Purchases of the NDAC, working under Donald M. Nelson, the Coordinator of Purchases.

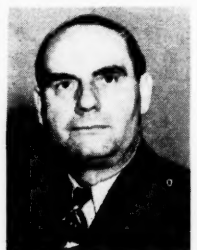
Born in New York City in 1900, Mr. MacKeachie had served with the Atlantic and Pacific Tea Company since his graduation from Colgate University. When OPM was formed, he became Deputy Director of the Division of Purchases, again working under Mr. Nelson, and when the latter was named Director of Priorities, Mr. MacKeachie became Director of Purchases.

Born in New York City in 1900, Mr. MacKeachie had served with the Atlantic and Pacific Tea Company since his graduation from Colgate University. When OPM was formed, he became Deputy Director of the Division of Purchases, again working under Mr. Nelson, and when the latter was named Director of Priorities, Mr. MacKeachie became Director of Purchases.



William H. Harrison, chief of the Production Division, is on leave as vice president of the American Telephone and Telegraph Company. Born in Brooklyn, 1892, he joined the Bell System at

the age of 17 as a repairman. While associated with the engineering department of Western Electric Company he graduated from Pratt Institute in the industrial engineering course in 1915. He has served in virtually every branch of the Bell System at different times, and was vice president in charge of the department of operation and engineering when he came to Washington in June, 1940, as director of the construction divisions of the NDAC. He was named chief of the Shipbuilding and Construction Branch of OPM last January and since September has been director of the production division of OPM.



William L. Batt, chief of the Materials Division, was born in Salem, Ind., and graduated from Purdue University in 1907. He became president of SKF Industries, Inc., of Philadel-

phia, in 1922, a position he still holds. Mr. Batt joined the defense effort in June, 1940, as a member of the Raw Materials Division of the National Defense Advisory Commission, later becoming Deputy Commissioner under E. R. Stettinius. In January, 1941, he was made Deputy Director of the Production Division of OPM and Director of the Materials Division in September. He was a member of the President's Special Mission to the U. S. S. R. and is chairman of the Joint Canadian-U. S. Materials Advisory Committee.



J. S. Knowlson, chief of the Division of Industry Operations, is from Hinsdale, Ill., is president and chairman of the board of Stewart-Warner Corporation. He was born in Chicago

in 1883, and holds degrees in engineering from Cornell University. Brought into the Office of Production Management at the request of Donald M. Nelson, Knowlson was appointed Deputy Director of Priorities on September 16, 1941, and in recent weeks has served as Acting Director of Priorities.



Sidney Hillman, chief of the Labor Division, is on leave as president of the Amalgamated Clothing Workers Union of America, and has served the government in various capacities since 1933.

He was a member of the Labor Advisory Board of NRA, labor representative of the Men's Clothing Code Authority, and a member of the National Industrial Recovery Board. He later was appointed to the National Advisory Board of the National Youth Administration. In May, 1940, he was named Director of the Labor Division of the National Defense Advisory Commission. In March, 1941, he was appointed to serve also as Associate Director General of OPM.

Born in Lithuania, 54 years ago, he emigrated to England and then to the United States, arriving here at the age of 20. A labor leader since 1910, he has been president of the Amalgamated Clothing Workers Union since its formation in 1913.



Leon Henderson was born in Millville, N. J., in 1895. He left Swarthmore College in 1917 to enlist in the Ordnance Corps and graduated after the war.

From the Russel Sage

Foundation, Mr. Henderson entered the Government as a member of the Board of the National Recovery Administration. He served as Executive Secretary to the Temporary National Economic Committee, and in 1929 was appointed to the Securities and Exchange Commission. A year later he was named Commissioner in Charge of the Price Stabilization Division of the National Defense Advisory Commission. In April, 1941, he was named Administrator of the Office of Price Administration and Civilian Supply, and since then has been Price Administrator, and Director of the Division of Civilian Supply of OPM.

Southern Field Offices of the Division of Contract Distribution

A complete list to date of the southern Field Offices of the Division of Contract Distribution was printed in the January MANUFACTURERS RECORD. Since then additional offices have been opened and changes made as follows:

NORTH CAROLINA

Charlotte

J. T. Anderson, Acting Mgr.
New Liberty Life Bldg.

Raleigh

J. T. Anderson, Acting Mgr.
c/o State Dept. of Conservation & Development
New State Office Bldg.

WEST VIRGINIA

Charleston

Charles Snyder, Mgr.
S. E. Cor. Capital & Quarrier Sts.

Huntington

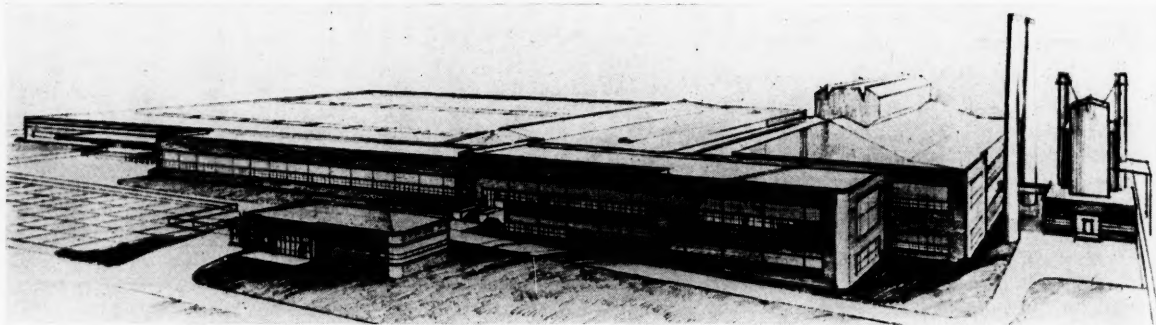
Division of Contract Distribution
309-311 West Virginia Bldg.

Clarksburg

John A. Kennedy, Acting Mgr.
Empire Nat'l Bank Bldg.

Wheeling

E. C. Drake, Mgr.
Hawley Bldg.
1025 Main St.



NEW GLASS PLANT FOR TEXAS

A CONTRACT to build a two furnace glass container factory with an output of 90 to 100 tons of glassware per day at Waco, Texas, has been awarded to Inge Construction Company, Inc., of Dallas, Texas, by the Owens-Illinois Glass Company of Toledo, Ohio.

The plant, on which construction will start immediately, is to be located on a 52-acre site purchased by the company last year and will be completed in from seven to ten months although the first furnace may be ready for operation within five months.

Plans call for a main factory building of more than 200,000 square feet of floor space with two wings which will add another 60,000 square feet of working space and an office building with 4,000 square feet of floor space.

The main building, a one-story structure with high ceiling, will be built in the usual glass factory style having the batch mixing and furnaces one end facing the line of bottle making machines. Between the machines and the 600 by 240 feet warehouse end of the building will be located the most up-to-date annealing lehrs.

The wings will be two stories high and will house employee washrooms, a service center, machine shop, power plant, and accommodation for one of the most complete applied color lettering departments in the Southwest.

Construction will be completely

fireproof and consist of steel, concrete and brick with large panels of Insulux glass block to provide controlled day lighting. Glass block also will be used extensively for interior partitions.

The site in Waco was chosen because of its strategic location and excellent shipping facilities after Owens-Illinois had made a two and one-half year survey throughout the Southwest.

Raw materials and natural gas are available in abundance in this section and in addition to its direct location on the Missouri, Kansas and Texas railroad, the plant will have connections with the nearby facilities of the Southern Pacific, the Cotton Belt, Missouri Pacific and the Gulf, Colorado and Santa Fe.

The factory, which will employ from 250 to 300 people and operate on a 24-hour basis, will manufacture a general line of glassware, with the exception of milk bottles, although the plant will be equipped to service and decorate milk bottles for the Southwest trade.

The Waco plant, under the management of George M. Walter, will be headquarters of the Southwestern division of Owens-Illinois and will manufacture glassware for the company's customers in Texas, Oklahoma, Arkansas, New Mexico and part of Louisiana.

Above—Architects drawing of the new Owens-Illinois glass plant to be erected immediately at Waco, Texas.

Two Furnace Glass Plant at Waco Will Produce 90 to 100 Tons Glassware Daily and Employ 300 Persons

Three other plants of the company are located in the South at Charleston, Fairmont and Huntington, West Virginia while a wholly owned subsidiary, the Owens-Illinois Can Company, also has a plant at Baltimore, Maryland.

Robert and Company, of Atlanta, Georgia, is the architect.

South's Bauxite Production In 1941 Sets All Time Record

Bauxite production in the United States (and such production is confined to the southern states) in 1941 exceeded the previous peak reached in the first World War year of 1918 by nearly 50 per cent and surpassed the output of 1940 by 105 per cent. Actual output in 1941 is estimated by the Bureau of Mines to have totaled \$99,500 long tons compared with only 438,913 tons in 1940. Of this production, Arkansas contributed 92 per cent or \$22,000 tons and Alabama, Georgia and Virginia the remaining 8 per cent amounting to 76,900 tons. The greatest increase in mine production over that of 1940 was in Arkansas and Alabama. No reliable figures are available yet on the value of bauxite though it is probable that the value on all grades of domestic ore shipped in 1941 was more than double that of 1940 (\$2,578,968).

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NEED A SUBCONTRACTOR ?

F-1. Machinists and Founders

Machinery—26 in. Kelley shaper; 20 in. LeBlond lathe; 24 in. Lodge & Shipley lathe; 16 in. Seneca lathe; 38 in. Fidelity lathe; 30 x 30 x 72 plane; 32 in. Cincinnati drill press; 28 in. Barnes drill press; 200 ton hydraulic wheel press; ¼ to 1 in. Aeme bolt cutter. Foundry—32 in. cupola; 5 ton gib crane; 1200 # daily capacity brass furnace; sand batch mixer; good assortment ladles and flasks; and well equipped pattern shop.

G-1. Range and Stove Manufacturer

Five polishing lathes 2 wheels per latch; 25 h. p. motor and generator operates four stands; 5 h. p. motor; top polishing machine with 15 h. p. motor; 3 h. p. motor on exhaust fan; twelve 5 h. p. belt driven emery stands; air compressor; four 5 h. p. direct motor driven emery stands; 2 upright motor driven drills; ¾ direct motor driven stand; 10 h. p. Texrope drive motor—4 tumbling mills; 50 h. p. motor for 8 tumbling mills; small upright bench drill; rust arrester with 2 motors; #9 Whiting cupola; five 8 h. p. "G. E." centrifugal air compressor; 1 h. p. air control motor for cupola; cinder mill with 15 h. p. motor; 3 small upright drills; small bench grinder; small bench upright drill; 3 small electric hand tapping machines; bench saw with 5 h. p. motor; and 2 bench saws with 10 h. p. motor.

G-2. Machine Repair, Electric Welding and Castings

Pattern Shop—36 in. Fay & Egan band saw; 24" Fay & Egan jointer with 5 h. p. Westinghouse motor; iron bed wood turning lathe; 24" Pony planer; 5 h. p. Fairbanks-Morse motor; Portland core machine and 5 h. p. "G. E." motor; cutters for core machine; ¾" electric drill, U. S. Electric Co.; Oliver Universal trimmer with saw table and drill; 5 h. p. Diehl motor for lathe. Machinery—3 Oliver pattern makers vice; 3 Oliver pattern makers benches; bench with drawers; numbering machine; set of turning tools; set (turning) of mortising chisels; Oliver electric glue pot; cast iron stove; set of tapered burning irons; Oliver band saw sharpener; Oliver band saw setter; set of wood planes; 36 in. face plate for lathe; shelves for patterns; 84 in. face plate for lathe; jigs for turning gear teeth; jigs and attachments for core machine; core box planer; hand saw vice; belts and devices for speeding machines; clamping tools for patterns; 15 h. p. "G. E." motor and starter. Machine Shop—60 in. Niles lathe and 7½ h. p. Western Electric motor; 18 in. Newton slotter with 7½ h. p. Allis-Chalmers motor; 16 in. Willard geared head lathe with 5 h. p. "G. E." motor; Pratt & Whitney hand milling machine; Wells tool room grinder; Schmidt cylinder grinder with 3 h. p. motor; 20 in. Gould & Eberhart shaper with 2 h. p. Century motor; Beaman & Smith milling machine; 6 in. Peeler back saw machine with ½ h. p. "G. E." motor; 10 in. x 9 in. Chicago air comp. with 25 h. p. Ideal motor; 1½ in. National bolt cutter; 7½ h. p. "G. E." motor; 30 in. x 30 in. light weight Cincinnati planer with 5 h. p. "G. E." motor; 12 in. McDougal & Potter steam hammer; 36 in. x 20 in. Shumate & Boyer engine lathe; 14 in. x 6 ft. Lodge & Shipley engine lathe; 6 in. Pone radial drill press; 10 ton Northern traveling crane 30 ft. span; Wright Co. metal band saw; 36 in. Fostock radial drill; 300 lb. Davis acetylene gen.

The facilities listed below are those of plants in the South believed capable of executing sub-contracts. Others will be printed in future issues of the Manufacturers Record. If you are making equipment or supplies under government contract and possibly can use the services and facilities of these plants under a sub-contract, write the Editor of the Manufacturers Record for the name and address of the plant in which you are interested.

electric forge fan and ½ h. p. "G. E." motor; "G. E." welding machine model 200-A; Weaver hand press; hand press for crank shaft; air receiver; 20 h. p. Lincoln motor; balance stand; Aired grinder roter; Aired grinder Little David; Hill & Jones alligator shear; 15 h. p. motor; three 6 in. Hamer & Curtis air hoists; oil heating furnace and tank; two blacksmith forges and fan; emery stand and motor; 25 h. p. motor; planer; 4 in. boring bar; grinding attachment and motor for 36 in. lathe. Foundry—8 ft. x 12 ft. heating furnace with steel stack and door; 6 ft. x 8 ft. x 4 ft. 6 in. steel tar vat; two trucks; two baskets; hooks and chains; 2 cleaning benches; truck; 10 ton revolving electric crane with 20 h. p. motor and starter; rotor air grinder; 6 Whiting 6 in. press cylinders for air and steel trolleys; 8 in. air hoist and trolley, Curtis Pneumatic Tool Co.; 3 side cranes and trolleys; 20 ton job crane, Atlantic Machine Works; 5 ton crane 30 ft. span, Century Pneumatic Co.; 5 ton Chicago air hoist; 2 ton Ingersoll-Rand air hoist; air rammer, Chicago Pneumatic Co.; air rammer, Dayton Pneumatic Co.; No. 6 Cupola blower, Buffalo Forge Co.; 20 h. p. Fairbanks-Morse motor; 38 in. cupola, Whiting; 4 ton Curtis air elevator; brass furnace and crane; 14 ft. x 24 ft. x 7 ft. steel and brick core oven and fixtures; steel runway and sidebrackets; 36 in. x 42 in. steel rumble; 22 in. x 42 in. steel rumble; 20 h. p. Lincoln motor; 3500 Geared Luddle; 3000 Geared Luddle; 4000 Geared Luddle; 3500 Bull Luddle; 700 Bull Luddle; 15 shank ladles; 7 hand ladles; 2 air bumpers, Ozburn Mfg. Co.; molding machine, Ozburn Mfg. Co.; 2 air riddles, Worthington Pump Co.; 200 core plates; emery stand and 3 h. p. motor and starter; 8 ft. electric airal grinder; air core hammer, Chicago Pneumatic Co.; core machine for Washington cores; standlifter; 2-ton steel converter; 3 cast iron cupolas; 10-ton electric crane; annealing furnace; sandblasting machine; 2 air compressors; core sand mixer with motor; large assortment of flasks, patterns and miscellaneous small tools.

K-1. Forgings

Three in. National forging machine, heavy duty, max. 3 in. round; ¾ in. Ajax forging machine, max. ¾ in. round; #1 Long & Alstatter punching shear, back geared, max. 2 in. round shear; #3 Rudolph & Krummel incline punch press, open back, platen 20 x 12 in. max.—vertical 7¼ in.; #5 Stiles punch press, back geared, platen 30 x 18 in. max.—vertical 7¼ in.; #18 Globe tumbler, barrel, 20 in. dia., 23 in. deep; 3¼ in. centering machine, single end, max. 3 in. round; 500# Beaudry ham-

mer (belted); R. K. LeBlond engine lathe, 14 in. swing, 6 ft. between centers; South Bend engine lathe, 16 in. swing, 7 ft. between centers; Pratt & Whitney engine lathe, 16 in. swing, 6 ft. between centers; American engine lathe, 18 in. swing, 6 ft. between centers; South Bend engine lathe, 18 in. swing, 8 ft. between centers; American engine lathe, 20 in. swing, 4 ft. between centers; Pratt & Whitney screw lathe, 10 in. swing, spindle hole 1 in. dia.; #2 Bordens & Oliver screw lathe, 12 in. swing, spindle hole 1 in. dia.; #2 Warner & Swassey screw lathe, 14 in. swing, spindle hole 1 in. dia.; 2 Cincinnati Bickford Gang drills, 6 spindles, cap. 10 in. to center of drill—table 8 ft. long; two 20 in. B. F. Barnes single spindle drills, 22 in. dia. tables; W. F. J. Barnes stat. head drill, 10 x 12 in. table; Peerless sensitive drill, 7½ in. dia. table; Ott cylindrical grinder—will grind up to 5 in. dia., 18 in. long; Detroit centerless grinder #1; Cincinnati cutter grinder—for grinding small tools; HD4 R. G. Haskins pedestal grinder; Fay & Egan jig saw—48 x 48 in. table; three 6 in. Peerless power saws—cap. 6 in. round; two Landis threaders, back geared, max. cap. 1½ in. round; #2 Pratt & Whitney hand milling machine—8 x 18 in. table; #0 Bickett bench milling machine—3 x 12 in. table; #4B Becker vertical milling machine—table 10¼ x 26 in. max.; #2 Cincinnati plain milling machine—table travel 21 in.; 18 in. Crank shaper—18 in. stroke max.; American 20 in. shaper, back geared, 20 in. stroke max.; three #4 A. H. Nilson 4-slide cold forming machines, max. 12 gauge, ¾ in. wide.

L-1. Machine Manufacturer

Sheldon lathe, 11 in. swing, 36 in. between centers, 1-1/16 in. hole in spindle; Monarch lathe, 16 in. swing, 58 in. between centers, 1-5/16 in. hole in spindle; LeBlond lathe, 13 in. swing, 69 in. between centers, 1-1/16 in. hole in spindle; National lathe, 18 in. swing, 39 in. between centers, 1¼ in. hole in spindle; lathe, 16 in. swing, 36 in. between centers, 1¼ in. hole in spindle; lathe, 13 in. swing, 35 in. between centers, ¾ in. hole in spindle with milling attachment; Sheldon lathe, 10 in. swing, 20 in. between centers, 1-1/16 in. hole in spindle; lathe, 18 in. swing, 50 in. between centers, 1¼ in. hole in spindle; turret lathe, 18 in. swing, 34 in. between centers, ¾ in. hole in spindle, 6 stations on turret head; turret lathe, 15 in. swing, 29 in. between centers, 1½ in. hole in spindle, 6 stations on turret head; two turret lathes, 12 in. swing, 1¼ in. hole in spindle, 6 stations on turret head; Champion 21 in. heavy duty drill press, drilling capacity 2 in.; two 12 in. drill presses, drilling capacity ½ in.; 17 in. turret drill press, 6 stations on head of press, low speed, high speed, reverse, and neutral, drilling capacity ¾ in.; 18 in. triple drill press, drilling capacity ¾ in.; three 14 in. drill presses, drilling capacity ½ in.; two hand drills, 1 has ¾ in. drilling capacity, and other ¾ in. drilling capacity; A. C. electric welder; D. C. electric welder, driven by 7½ h.p. motor; Arcylene welding equipment; Arcylene generator; Dunmore grinder, mounted on special lathe, can be used for internal or external grinding, spindle speed ranges from 4,600 R.P.M. to 42,500 R.P.M.; two 10 in. Queen City heavy duty grinders, with double spindle; Punch and shear combination press, punches up to ¾ in. hole through ¾ in. stock, and cuts ¾ in. stock 5 in. wide.

HOW TO GET AN ARMY CONTRACT

A LIST of the various offices for Procurement Planning and the first step to be taken in order to get an army contract was printed in the January MANUFACTURERS RECORD. The next step covers actual purchasing by the Army and four different methods are employed as follows:

(1) All normal purchases are made after advertising for bids. Purchasing officers prepare circular proposals and invitations to bid. These papers list the items to be purchased, applicable specifications, delivery points and dates, and furnish all information necessary for a prospective bidder to calculate his costs and submit a bid. Manufacturers and dealers who desire to sell to the War Department should communicate directly with the purchasing agency engaged in the procurement of articles which the manufacturer or dealer can supply. Invitations to bid will be forwarded them when purchases of those articles are to be made.

(2) A large portion of the requirements of a military force are for articles which are not in ordinary commercial production. Included within this category are weapons, ammunition, and numerous other special articles of transportation and communication equipment. In connection therewith, several factors govern purchasing. Consideration is given to prompt delivery, proper quality, fairness of price, effect of the defense program upon consumers, maintenance of fair labor standards by prospective contractors, avoidance of undue geographic concentration of contracts, financial responsibility of prospective contractors, avoidance of transportation congestion, and the availability of power facilities. These considerations apply also to the military requirements for articles which are normally in commercial production but which are presently needed in such large quantities as to require particular procurement methods to insure prompt and efficient supply.

(3) Purchasing officers of the War Department may purchase to the amount of \$500 or less in the open market. Such purchases are made, with minor variations covered in the regulations in a manner common among business men. Purchases in excess of this amount may be made without formal advertising when authorized by the chiefs of the respective arms or services. Purchases of this sort are made, in general, at posts and stations to meet maintenance requirements.

(4) Whenever it is necessary to commence work without delay and time is not available for the development of design and plans to the extent that is necessary if a lump-sum proposal is to be intelligently formulated, the cost-plus-a-fixed-fee type of contract provides a form of agreement under which the work can be commenced at once, and the

successive steps of construction can proceed as the successive steps of design are developed and reduced to working plans. This type of contract may be used for supplies, architectural, engineering, constructing or operating services as well as for a combination of these services in one contract. Consideration will be given to all qualified contractors, architects, and engineers interested in the defense construction program who have signified their desire for consideration and who have filed the necessary information concerning their firms with the War Department. This type of contract is usually negotiated only by the Office of: The Quartermaster General, The Chief of Engineers, The Chief of the Air Corps, The Chief of Ordnance, War Department, Washington, D. C.

Manufacturers whose facilities are producing or capable of producing any item of military requirements should communicate directly with the agency responsible for the purchase of that item and request that the name of the company be placed on the mailing list to receive invitations to bid when purchases are to be made. The following is a list of the principal depots, etc., and the articles purchased at each:

Philadelphia Quartermaster Depot, 21st and Johnston Streets, Philadelphia, Pennsylvania.

Textiles, cotton and woolsens; flags, colors, and standards; blankets, mattresses, sheets, pillow cases, and mosquito bars; buttons, badges, insignia, and medals; musical instruments; caps, hats, gloves, and men's furnishings; firemen's rubber clothing, uniforms, overcoats, raincoats, leggings, underwear, socks, and special clothing; bakers' and cooks' clothing; suiting cloth; sweaters; flying cadet clothing; thread; brassards; zippers; sleeping bags; sewing machine work; ribbons; nurses' uniforms; bathrobes; towels; hymnals; pajamas.

Boston Quartermaster Depot, Army Base, Boston, Massachusetts.

Boots and shoes of all kinds; shoe laces and lasts; foot measuring outfits; ski equipment; snow shoes; cleaning and preserving materials; forage; shoe repair supplies and machinery.

Jersey City Quartermaster Depot, 26 Exchange Place, Jersey City, New Jersey.

Toilet articles; cleaning and preserving materials; laundry supplies and equipment; paper bags and sacks; paper stationery supplies; stencils; toilet paper; wrapping paper; forage; coal; construction materials and equipment.

Jeffersonville Quartermaster Depot, 10th St. and Meigs Ave., Jeffersonville, Indiana.

Canvas and tentage; field stoves,

ranges, mess tables, stools, and kitchen and bakery equipment; leather harness, saddlery, and pack equipment; animal drawn vehicles; agricultural implements; individual equipment; forage, and cleaning and preserving materials; leather treatment; thread; laundry supplies and equipment; goggles; tableware; glassware; chinaware; and kitchenware; haversacks; belts (web, leather); bedding rolls; cutlery, wood tool boxes; sewing machine work; foot tubs; lanterns and accessories; supply and pack artillery chests; miscellaneous hand tools; tool sets; tool kits; commissary rolls; hand carts.

Chicago Quartermaster Depot, 1819 West Pershing Road, Chicago, Illinois.

Forage and cleaning and preserving materials; scales for weighing; barrack bedsteads and chairs; canvas and steel cots; field desks; trunk lockers; horse clipping machines, blades and all parts therefore; canvas cot covers; field safes; folding camp tables; laundry supplies and equipment; ski equipment; snow shoes; coal.

Washington Quartermaster Depot, 24th and M Streets, N. W., Washington, D. C.

Incandescent lamps, postal scales; office and officers' and noncommissioned officers' furniture, filing equipment, rugs; refrigerators; electric and gas ranges; typewriters, adding machines, and office labor-saving devices; blank forms and envelopes; bakery and kitchen equipment; electric lighting fixtures; generators; lockers; laundry supplies and equipment; forage; construction materials and equipment.

Quartermaster Supply Officer, San Francisco General Depot, Fort Mason, San Francisco, California.

Alaskan clothing; fresh frozen beef for Hawaii and flour for Hawaiian and Philippine departments; forage; cleaning and preserving materials; sweaters; laundry supplies and equipment; ski equipment; coal.

Holabird Quartermaster Depot, Baltimore, Maryland.

Motor vehicles, trailers, bicycles; motor vehicle equipment; truck curtains; fire fighting equipment; machine and hand tools; machinery and equipment for motor transport shops.

Quartermaster Motor Supply Depot, Fort Wayne, Detroit, Michigan.

Motor vehicle parts and equipment.

Similar supplies of standard manufacture such as: brooms, brushes, cordage, cotton mops, corrugated cans, cleaning and preserving materials, caustic soda, corrugated shipping containers, candles, calcium hypochlorite, cotton

(Continued on page 60)



motor vehicle equipment; truck curtains; fire fighting equipment; machine and hand tools; machinery and equipment for motor transport shops.

Motor vehicle parts and equipment.

Similar supplies of standard manufacture such as: brooms, brushes, cordage, cotton mops, corrugated cans, cleaning and preserving materials, caustic soda, corrugated shipping containers, candles, calcium hypochlorite, cotton

(Continued on page 60)

War Contracts and Allocations in the South

The following table shows by government agency the distribution of \$6,960,422,000 in the South for Federal war contracts and allocations as reported for the period June 1, 1940 through December 31, 1941.

The total value shown for the Army, Navy and Maritime Commission is for

awards of \$50,000 or more. Smaller contracts are omitted as are all awards for foodstuffs.

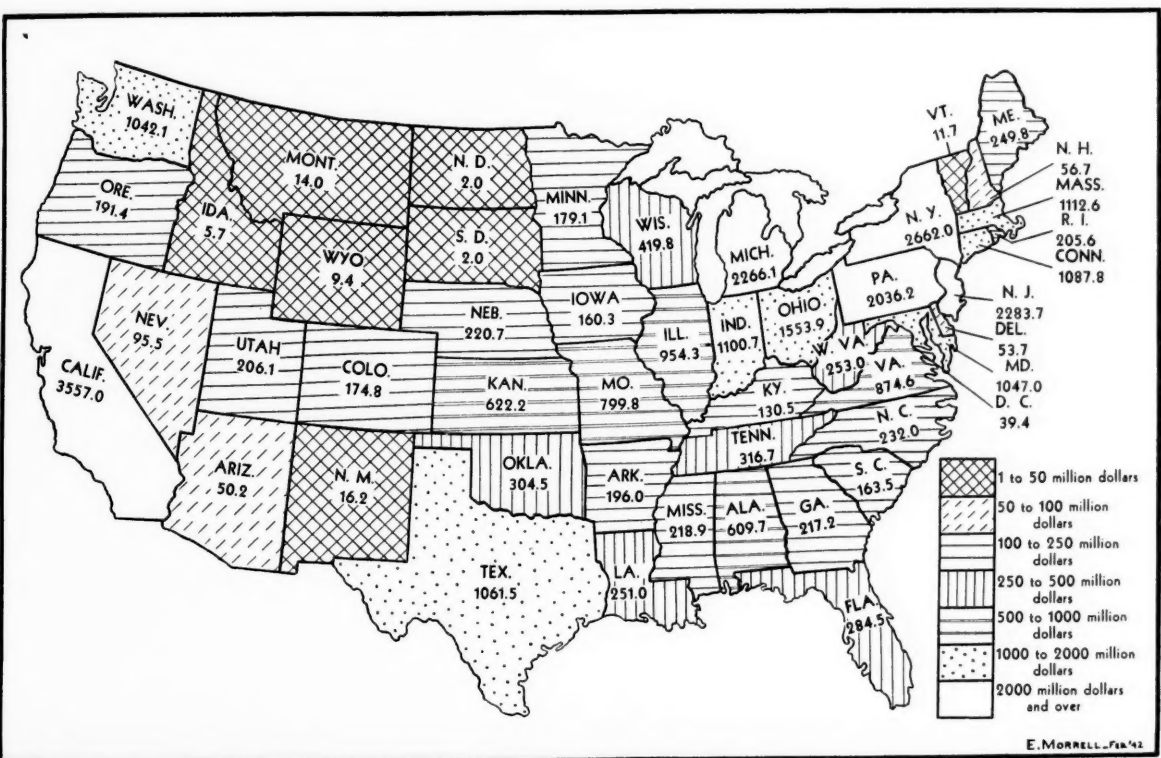
"Aircraft" includes contracts for airframes; airplane engines, propellers, and other parts; and certain related equipment such as parachutes and aircraft pontoons. Armament, instruments, and communication equipment

are excluded. "Ships" includes contracts for the construction of new vessels of all kinds; the purchase of used ships; and ship conversion, recommissioning, and repair. Propulsion machinery (when separately contracted for), armor, armament, navigation and radio equipment, parts, and materials are excluded.

Major War Supply and Facility Contracts and Allocations, June, 1940 through December, 1941
(Thousands of Dollars)

State	Army, Navy and Maritime Commission				Dept. of Commerce	Federal Works Agency	Federal Security Agency	Federal Loan Agency R. F. C.	Total
	Aircraft	Ships	Miscell.	Industrial					
Alabama	190,734	107,882	236,315	52,030	339	12,510	4,196	5,698	609,704
Arkansas	.....	.....	558	140,500	49,678	.....	1,621	3,172	195,962
Florida	76,258	12,944	7,641	150,985	1,830	25,032	3,407	6,400	284,497
Georgia	18,661	37,055	4,693	139,192	739	12,028	4,393	459	217,220
Kentucky	.....	7,328	32,760	37,063	324	9,286	3,510	40,239	130,540
Louisiana	40,623	5,671	85,240	101,713	841	11,013	3,389	2,500	250,990
Maryland	520,212	126,885	152,237	131,165	85,614	.....	23,241	3,043	1,047,000
Mississippi	.....	112,233	4,905	22,683	64,505	441	6,965	3,584	218,933
Missouri	134,310	.....	290,118	269,102	77,581	.....	24,240	4,013	709,770
North Carolina	.....	37,100	48,821	10,406	116,051	.....	15,432	4,086	5
Oklahoma	160,710	.....	7,442	83,642	40,791	549	4,649	3,528	210
South Carolina	.....	10,800	40,248	22,635	63,784	1,211	21,766	2,794	230
Tennessee	35,597	3,928	82,249	121,523	62,459	139	6,416	4,331	15
Texas	267,090	169,260	55,601	267,507	262,560	2,049	26,433	9,629	1,241
Virginia	.....	434,123	44,412	169,211	203,051	.....	18,726	3,795	7
West Virginia	.....	16,920	39,417	175,937	1,510	.....	15,343	3,838	45
South	1,117,889	1,237,555	936,888	1,783,960	1,508,597	8,463	234,701	64,708	61,637
United States	8,038,499	4,852,474	8,582,523	5,885,447	3,635,155	20,935	754,458	206,634	743,690

* Includes \$12,695,000 for the United States under the Farm Security Administration of the U. S. Dept. of Agriculture. Of this, \$6,025,000 was for the South—Maryland, \$4,331,000, Mississippi, \$110,000, North Carolina, \$70,000, Tennessee, \$115,000, Texas, \$109,000 and Virginia, \$1,290,000.



SOUTH'S CONSTRUCTION CONTRACTS REMAIN STRONG

SOUTHERN construction contracts during January totaled \$165,330,000. This figure is fourteen per cent ahead of the total for the same month of 1941, although it represents a drop of about twelve per cent from December.

January increases in Federal construction, as expected, raised the figure for Government financed projects. The increase was well over seventy-three per cent ahead of the total for this type of work initiated during the preceding month.

Industrial expansion, which for eight months has experienced unprecedented activity due to injection of Federal funds into what ordinarily are privately financed projects, was less in January than in the preceding month and was under one-half of the \$75,889,000 reached in January of 1941.

Private building with a total of \$10,678,000 showed a drop of about thirty-six per cent from the amount placed under contract during December, but the January total as compared with that for the same month of last year is well ahead.

At this time last year, industrial construction contracts were rising. Their valuation of \$75,889,000 represented fifty-four per cent of the total awarded in that month. Industrial contracts in the current January represented but twenty-three per cent of the valuation of all awards made during the month as reported to the MANUFACTURERS RECORD.

Further studies of the statistics of the two Januaries reveal that whereas last year public building comprises thirty-three per cent of the value of contracts in the first month, this year the percentage is forty-two.

In the engineering field is where the big change has occurred. Big dams and extensive airport work have swelled the current aggregate so that it is twenty-six per cent of the month's total. In January of 1941 engineering projects represented but two per cent of the month's figure, with Federal electric work occupying the foremost position.

Private building, from the percentage viewpoint, is in about the same position. Highway work is down. During January of 1941, these road building activities were five per cent of the total; this January, they are three per cent.

Percentage comparisons on the breakdown of figures of private building, industrial construction, public building, engineering work, and highway activity, as compared with the totals for contracts awarded in January 1941 and 1942, are:

Private building, including assembly buildings such as churches, theatres, auditoriums, commercial buildings such as stores, restaurants, filling stations and garages, residential

work including apartments, hotels and dwellings, other than government housing projects, and office buildings—January, 1941, 6 per cent; January, 1942, 6 per cent;

Industrial construction—January, 1941, 54 per cent; January, 1942, 23 per cent;

Public building, including the various military and naval projects, Federal and State buildings, public housing projects and schools—January, 1941, 33 per cent; January, 1942, 42 per cent;

Engineering projects of a public nature, involving dams, drainage work, earthwork, airports, government electric projects and municipal utilities, such as sewers and water projects—January, 1941, 2 per cent; January, 1942, 26 per cent;

Highways, streets and bridges—January, 1941, 5 per cent; January, 1942, 3 per cent.

Some of the major projects active during the month are listed below:

Shipbuilding

Maryland Dry Dock Co., Fairfield, Baltimore, made the award for a pier under its \$5,000,000 expansion program.

Consolidated Steel Corp., at Orange, Texas, proposes a \$5,000,000 expansion of its yards to enable it to build the recently contracted for escort vessels, a Naval ship of the destroyer class.

Merrill-Stevens Drydock & Repair Co., Jacksonville, Florida, received a \$3,000,000 Navy allotment for expansion, including a 12,000-ton floating dry dock 500 feet long.

Brown Shipbuilding Co., Houston, Tex., filed the application for permission to dredge a slip and construct a wharf. This company is to expand in connection with its \$80,000,000 to build naval escort vessels.

Pendleton Shipyard Co., Inc., New Orleans, let the contract for a ship plant, approximate cost \$500,000.

Savannah Machine & Foundry Co.,

First Month Total Above Figure For January of Last Year

Government Work Increases As War Effort Grows

Savannah, Ga., planned installation of \$350,000 worth of equipment in connection with a \$10,000,000 contract to building minesweepers.

Gulf Shipbuilding Corp., Mobile, Ala., planned a new \$200,000 outfitting dock for naval units.

Pensacola Shipyards & Engineering Corp., Pensacola, Fla., acquired an old shipyard property for rehabilitation preliminary to construction of ships.

South's Construction by States

	January, 1942	
	Contracts Awarded	Contracts to be Awarded
Alabama	\$2,815,000	\$5,940,000
Arkansas	837,000	9,467,000
District of Columbia	5,254,000	5,197,000
Florida	13,296,000	8,258,000
Georgia	21,477,000	6,152,000
Kentucky	4,211,000	5,527,000
Louisiana	3,531,000	8,239,000
Maryland	12,962,000	13,566,000
Mississippi	819,000	37,884,000
Missouri	1,306,000	8,144,000
North Carolina	1,204,000	33,582,000
Oklahoma	338,000	20,137,000
South Carolina	3,808,000	19,366,000
Tennessee	26,670,000	56,581,000
Texas	17,341,000	139,368,000
Virginia	27,497,000	36,920,000
West Virginia	21,964,000	3,607,000
TOTAL	\$165,330,000	\$417,935,000

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North Carolina Shipbuilding Co. asked permission of United States Engineers to dredge approaches to its shipways on the Cape Fear River at Wilmington, N. C.

Steel

Bethlehem Steel Co. let the contract for an office building at its inner harbor repair yard at Baltimore, where it will soon further expand by taking over three smaller ship repair yards extending over two blocks of waterfront. The expenditure, which is being put up by the Navy Department, is placed at \$4,300,000.

Bethlehem Steel Co., Sparrows Point, Baltimore, let the contract for a \$2,000,000 pipeline to provide industrial water for its rapidly expanding steel making activities.

Rustless Iron & Steel Corp., Baltimore, let contract for an addition building estimated to cost \$200,000.

Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., proposed to recondition, equip and reopen its Bessie mine.

Connors Steel Co., Birmingham, placed the order for an electric furnace capable of making 36,000 tons of steel annually.

Weirton Steel Co., subsidiary of National Steel Co. at Weirton, W. Va., is to install facilities for coating tin under the new economical electrolytical process.

Power

Houston Lighting & Power Co., Houston, Tex., received its priority rating for the 35,000-kilowatt turbine it will install.

Southwestern Gas and Electric Co. was authorized to build a 132,000-volt tie-in transmission line; cost \$346,500.

Dallas Power & Light Co., and Dallas Gas Co., Dallas, Tex., proposed improvements involving \$185,000.

Communication

Chesapeake & Potomac Telephone Co.,

Richmond, Va., was authorized to finance a \$16,000,000 program for additions and improvements during 1942.

Southwestern Bell Telephone Co., of Dallas, is to spend \$4,761,000 on new equipment to supplement existing facilities in the Dallas, Houston and San Antonio areas.

Chesapeake and Potomac Telephone Co., Baltimore, announced expenditures approximating \$1,333,000.

American Telephone & Telegraph Co., through its Long Lines department, will spend \$912,000 for improvements to follow the Joplin-Tulsa cable.

American Telephone & Telegraph Co., in collaboration with Southern Bell, was authorized to spend \$512,000 for supplementing facilities between Durham, N. C., and Selma.

Southern Bell Telephone & Telegraph Co. expanded its facilities in Atlanta and vicinity, cost \$185,000.

Rubber

Probably the most important possibility for a great industry already started in the South was announcement by Jesse H. Jones, federal loan administrator, that \$400,000,000 will be spent for substantial increases in production of synthetic rubber. Major oil and chemical companies, some of whom are now building such facilities, are expected to participate in the program to make this country independent of Asiatic rubber.

Carbide & Carbon Chemicals Corp., of New York, soon is to start building a butadiene plant at Charleston, W. Va. Ultimate cost is to be in the neighborhood of \$10,000,000.

Hycar Chemical Co., of Akron, Ohio, was reported to be planning to triple capacity of its \$2,750,000 synthetic rubber plant under construction at Louisville, Ky.

Monsanto Chemical Co. is to establish a plant at Texas City to produce chemicals used in making synthetic rubber. It is re-

ported the sugar refinery there will be used for the purpose.

Tin

The big Dutch tin smelting plant soon expected to start operations at Texas City, Texas, is understood to be scheduled for enlargement to a point where Bolivian ore can be processed to yield 30,000 tons of tin annually.

Explosives—Chemical

The Federal Government took options on a site near Point Pleasant, in Mason County, W. Va., for a proposed \$55,000,000 T.N.T. plant.

Location of a \$3,000,000 gas mask charcoal plant was selected in Arkansas.

Aircraft, Radio

Bids were opened by U. S. Engineers for a fueling and storage system at the big Tulsa bomber assembly plant, which is reported to be expanded to two and a half times its present capacity.

McDonnell Aircraft Corp., Robertson, Mo., opened bids for its big new parts plant.

Westinghouse Electric & Manufacturing Co. let the contract for alterations to its radio factory at Baltimore.

Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa., opened bids for foundation work in connection with its \$1,000,000 electronic radio tube plant at Fairmont, W. Va.

American Hammered Piston Ring division of Koppers Co., Baltimore, received bids for alterations under an extensive expansion program in that city.

Petroleum, Gas

Phillips Petroleum Co., of Bartlesville, Okla., obtained right-of-way for a \$35,000,000 to \$50,000,000 natural gas pipeline to stretch about 900 miles from the

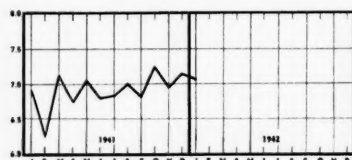
(Continued on page 62)

South's Construction by Types

	January, 1942		January, 1941	
	Contracts Awarded	Contracts to be Awarded	Contracts Awarded	Contracts to be Awarded
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$757,000	\$951,000	\$1,466,000	\$2,465,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	1,142,000	348,000	1,911,000	1,248,000
Residential (Apartments, Hotels, Dwellings)	8,504,000	3,510,000	4,350,000	2,092,000
Office	275,000	190,000	378,000	480,000
	\$10,678,000	\$4,999,000	\$8,085,000	\$6,285,000
INDUSTRIAL	\$37,542,000	\$112,067,000	\$75,889,000	\$161,567,000
PUBLIC BUILDING				
City, County, State, Federal	\$60,375,000	\$145,392,000	\$39,010,000	\$51,774,000
Housing	5,492,000	18,885,000	7,565,000	24,832,000
Schools	3,406,000	6,845,000	1,449,000	8,386,000
	\$69,273,000	\$171,122,000	\$48,024,000	\$84,992,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	\$41,888,000	\$8,016,000	\$877,000	\$46,139,000
Federal, County, Municipal Electric	320,000	51,453,000	1,891,000	12,061,000
Sewers and Waterworks	1,384,000	7,987,000	581,000	29,564,000
	\$43,592,000	\$66,556,000	\$3,349,000	\$87,764,000
ROADS, STREETS AND BRIDGES	\$4,245,000	\$63,191,000	\$6,370,000	\$98,660,000
TOTAL	\$165,330,000	\$417,935,000	\$141,717,000	\$439,268,000

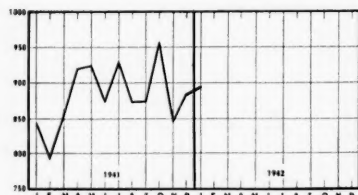
Industrial Production Trends

INDUSTRIAL production, which in December stood at 168 on the 1935-39 =100 adjusted index, rose one point during January to 169, according to preliminary reports. This is in contrast to the anticipated decline in December of three points while, on the other hand, January was expected to rise higher than it did. Final returns may revise this January report. In any event, indications are that in the months to come production will rise under the impetus of war to heights never known before in American industry.



STEEL INGOT PRODUCTION
(Millions short tons)

Steel, a basic factor in industrial production, rose in December to 7,163,999 tons while early returns for January indicate a slight decline to 7,020,031 tons. The December total, besides bringing the year's production to a height never before known of 82,927,557 tons, was based on an operating rate of capacity of 98.1% compared with slightly less than 7 million tons in November when the operating rate was 98.3%. This apparent anachronism is explained by increased production facilities of the steel industry. The average operating rate for 1941 was 97.4%.

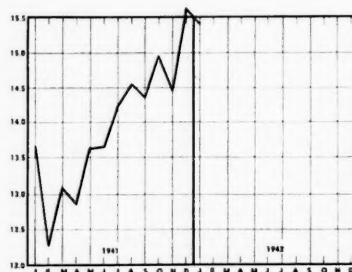


COTTON CONSUMPTION
(Thousands of bales)

Cotton consumption, which declined rather heavily in November to less than 850,000 bales, rose again in December to 887,326 bales and made a still further recovery in January, according to early returns, when the total was only slight-

ly below 900,000 bales. The demand for textile materials needed to equip our enlarged Army will put a severe strain upon textile mills and necessitate a domestic cotton consumption in 1942 heretofore unknown.

Early returns indicated that production of electric power in December aggregated 15,353,703,000 kw. hrs., but final returns show that a record was set with 15,635,000,000 kw. hrs. January production was only slightly less with about 15,490,000,000 kw. hrs. The December total represented an increase of 16.5% above December 1940 while the average daily production reached an all-time high for the fifth consecutive month with 533,115,000 kw. hrs. and is an increase of 2.3% when compared with November. The largest regional

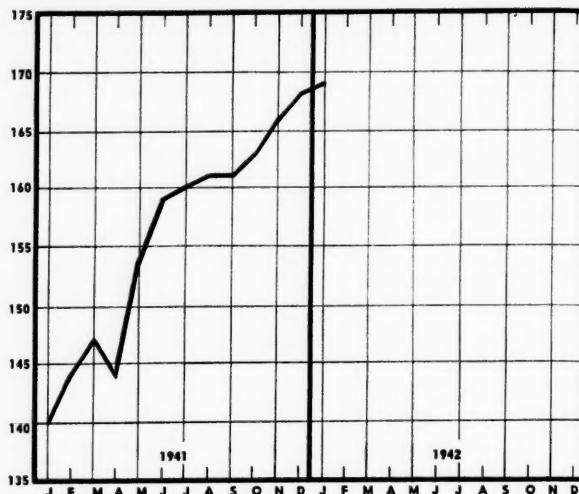


ELECTRIC POWER PRODUCTION
(Billions kilowatt hours)

increases in December over November were in the South Atlantic and East South Central which were 55.6% and 26.4% respectively.

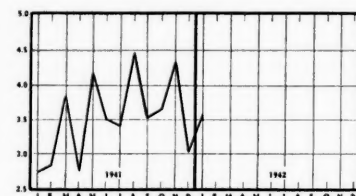
As anticipated, carloadings in December were subjected to seasonal decline with a complete total of 3,046,000 cars. Early returns for January show a better than seasonal rise to slightly over 3,500,000 cars. While carloadings are sure to vary from month to month, the general average is constantly increasing and in the first quarter of 1942 are now expected to surpass the predicted 8% rise over 1941.

Final returns as to crude petroleum



INDUSTRIAL PRODUCTION
(Index 1935-39=100)

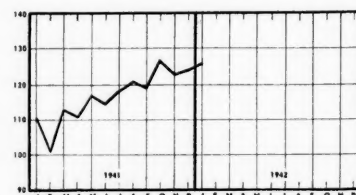
production in November show a total for the month of 123,355,000 barrels. Preliminary returns for December and January show a slight increase to respective totals of approximately 125 million and 126 million barrels. Though the monthly aggregate production is important, the daily average is still more important and this in November again established a new record with



CARLOADINGS
(Millions)

4,111,800 barrels or 42,600 barrels higher than in October.

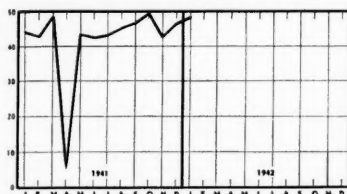
Bituminous coal production, which was expected to decline in December, actually rose more than 3 million tons from November to total 46,667,000 tons. Early returns for January indicate that



CRUDE PETROLEUM PRODUCTION
(Millions of barrels)

production went higher still with 48,341,000 tons produced. Though it is doubtful if monthly production will go much higher, it is unlikely that there will be any noticeable decline during the ensuing months.

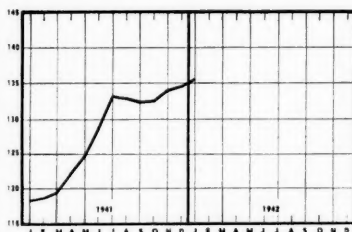
Factory employment, which stood at 134.6 on the 1923-25=100 adjusted index, rose very slightly in January to 135.5, though increases in the months ahead are expected to accelerate considerably. Total civil non-agricultural employment again rose to a new all-time peak in December with a total of 40,940,000. This represents a gain of 2,800,000 workers over the preceding year and 5 million greater than in December 1929. Manufacturing employment however, declined slightly in December but not to the usual seasonal proportion, the decline of 53,000 factory workers being caused largely by a sharp reduction in automobile production as well as a seasonal drop in the canning and preserving industries. On the other hand, several industries other than those related to war production



BITUMINOUS COAL PRODUCTION
(Millions of tons)

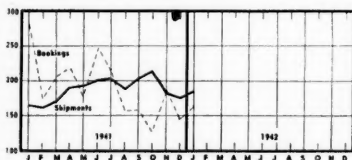
rose substantially. Compared with 1940, factory employment in December increased 15.3% and payrolls, 38.7%.

Both bookings and shipments of structural steel rose slightly in January to approximately 160,000 and 180,000 respectively. Final tabulation of bookings and shipments in December, amounting to 146,379 tons and 176,126

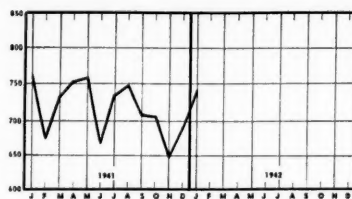


FACTORY EMPLOYMENT
(Adjusted index, 1923-25=100)

tons, respectively, brought the year's totals to 2,296,954 tons booked and 2,251,089 tons shipped, which compares with 1940 totals of 1,748,144 tons and 1,515,543 tons. While the present backlog of orders indicates that the industry will maintain its present rate of production through March and possibly April, current and anticipated bookings are



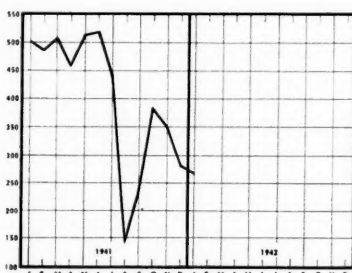
STRUCTURAL STEEL
(Thousands of tons)



SOUTHERN PINE PRODUCTION
(Million board feet)

likely to accelerate production during the second quarter of the year.

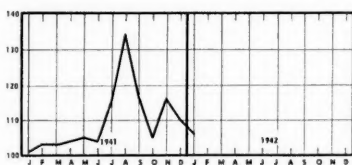
Southern pine production, which declined to the year's low of 650 million board feet in November, made a partial recovery in December and jumped back to 745 million board feet in January. The latter was due in large measure and will reflect upon future months' production by the record-making lumber purchase of the U. S. Engineers when they awarded bids in early January on approximately half a billion feet of



AUTOMOBILE FACTORY SALES
(Thousands)

lumber, valued at about \$17,500,000, for new Army camps, ordnance plants, etc.

Factory sales of automobiles in December totaled 282,205 and dropped still further in January to about 270,000. As a war measure, production of passenger cars and light trucks was prohibited after February 1 since the available frozen stock now on hand is believed ample to supply military requirements. From now on automobile sales will be restricted to the second-hand trade while the manufacturing plants will be converted to war production.



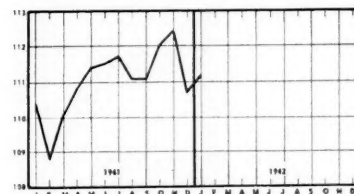
DEPARTMENT STORE SALES
(Adjusted index 1923-25=100)

Department store sales, as recorded on the 1923-25=100 adjusted index, dropped to 110 in December from 116 in November. In January they dropped still further to 108. The decline in December was contrary to expectations for it was believed that the increased earn-

ings of factory workers would be in sufficient volume, as far as retail purchases were concerned, to offset the lack of larger commodities such as refrigerators and other large equipment.

U. S. Treasury bonds, generally speaking, increased in value steadily throughout 1941, but dropped sharply in December under the impact of war to 110.7 for the month's average price. However, returns for January indicate a resumption of confidence with the average rising to 111.2 per 100-dollar bond.

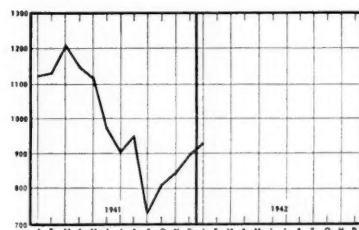
Commercial failures, though still low, have been rising steadily since October



U. S. TREASURY BONDS
(Average price per \$100 bond)

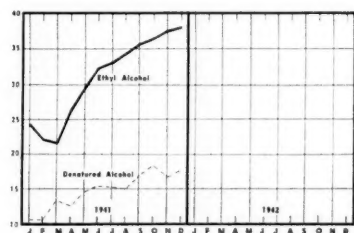
and numbered \$98 in December and approximately 925 in January. Aggregate liabilities in December were \$13,469,000. From now on failures are expected to decline steadily though the number among small manufacturers is apt to increase.

Estimated production of alcohol in December was approximately 38 million



COMMERCIAL FAILURES
(Total number)

gallons of ethyl alcohol and slightly less than 18 million gallons of denatured alcohol. Because of the importance of alcohol and other chemicals in war production further release of production figures has been curtailed, though it is known that the quantity is being materially stepped up.



ALCOHOL PRODUCTION
(Millions of gallons)

PRIORITIES

Silk Waste, Nails and Garnetted or Reclaimed Silk Fiber—Amendment No. 2 to General Preference Order M-26 extends the effectiveness date of this order to January 31, 1943.

Diphenylamine—The chemical synthesizer and reagent diphenylamine has been placed under complete allocation control in General Preference Order M-75.

Aluminum Scrap—Under Supplementary Order M-1-d, the segregation of aluminum scrap, by alloy content and form, is made mandatory.

Aluminum—The use of aluminum is prohibited in any manufacture except on war contracts and fifteen specific items according to the provisions of Conservation Order M-1-e. Of the fifteen items permitted, most of them are restricted to low grade aluminum which has not been debased.

Copper and Copper Alloy Scrap—A revision of Order M-9-b provides that no deliveries of copper or brass scrap may be made except to a scrap dealer or brass mill without authorization of the Director of Priorities. The amended Order revokes order P-61, which assigned an A-10 rating to certain users of copper and brass scrap and changes the provisions of M-9-b which permitted deliveries on such ratings. Under the new ruling, deliveries may be made only as authorized except for dealers and brass mills. Form PD-130 is for such authorization applications.

Copper and Copper Alloy Goods—Conservation Order M-9-c permits the manufacture of copper articles until March 31, 1942, provided the material was on hand December 1, 1941, and was in a form or stage of fabrication so it could not be used for other purposes. Interpretation No. 1 of this Order clarifies the situation as far as the use of copper in radios is concerned. Users are required to file Form PD-189. Supplementary Conservation Order M-9-c-1 provides that between January 1 and March 31 no shoe manufacturer may make a greater number of eyelets than will be necessary to fill orders for deliveries before April 1.

Synthetic Rubber—Amendment No. 1 to General Preference Order M-13 extends the effective date indefinitely and brings within the scope of the Order for complete allocation all types of synthetic rubber.

Rubber—Under the terms of Amendment No. 3 to Supplementary Order M-15-b, the use of crude rubber and latex is brought under rigid control. The effect will be to reduce the amount of these materials available this year for the manufacture of a wide variety of civilian goods by about 75 percent.

Rubber Tires, Casings and Tubes—In an Amendment to Supplementary Order M-15-c it is made clear that Lend-Lease and other exemptions are subject to rigid restrictions and that sales to other foreign governments can be made

only by permission of the Priorities Division.

Chromium—Amendment No. 1 to General Preference Order M-18-a prohibits any person from melting more than two tons of ferrochrome in any one month without authorization from the Director of Priorities.

Ethyl Alcohol—Regulations concerning ethyl alcohol are revised in Amendment No. 3 to General Preference Order M-30. Principal points are: ethyl alcohol is comprehended as meaning for industrial purposes only; restrictions on receipts are to be by calendar quarterly periods; certain orders, including those with A-1-j or higher rating, may be filled without reference to quantity limitations; and deliveries to Army, Navy, Lease-Lend countries and persons with Internal Revenue permits for tax free alcohol are exempted from quantity and certificate requirements.

Methyl Alcohol—Amendment No. 2 to General Preference Order M-31 prohibits the use of methyl alcohol in manufacturing anti-freeze compounds and applies to all stocks on hand as of January 1. Persons having supplies intended for this use are required to report all details to the Chemicals Branch of the War Production Board.

Tin—The previously permitted delivery of 5-ton lots of tin to regular customers monthly without authorization is cut to 3-ton lots by Amendment No. 1 to General Preference Order M-43. It also provides that the customer cannot receive more than five tons from all suppliers and must file an order of compliance with his purchase.

Titanium Dioxide—The percentage of titanium dioxide to be set aside by producers for direct allocation is increased from 20 to 25 percent by Amendment No. 3 to General Preference Order M-44.

Sheet Steel For Drums—An Amendment to General Preference Order M-45 provides that hot rolled sheet steel of any gauge may be used for the manufacture of sheet steel drums. It also extends the expiration date of the Order indefinitely.

Burlap—By an amendment to Conservation Order M-47, certain furniture and textile manufacturers may process up to ten unbroken bales out of their frozen stocks of burlap. The amendment also stipulates how the balance of stocks may be disposed of.

Jewel Bearings—All jewel bearings and jewel bearing materials become subject to complete allocation under Conservation Order M-50 on March 1. Until then, all transactions in jewel bearings not specifically authorized are prohibited, except for deliveries for defense orders with ratings of A-1-j or higher. Suppliers must file inventory information on form PD-235 and users on form PD-236.

Sulphite Pulp—All sulphite pulp pro-

ducers must contribute a proportionate part of their production for allocation among the regular customers of these firms whose facilities are being used to produce nitration pulp for explosives according to General Preference Order M-52. Under an amendment, two of the three firms referred to were able to supply their own customers in January.

Molasses—General Preference Order M-54 restricts the quantities of molasses to consumers and fixes rates of consumption and prohibits its use for production of beverage spirits. An amendment reduces restrictions as to use for animal feed.

Tung Oil—Strict priority control of tung oil is provided by General Preference Order M-57 which prohibits deliveries except as follows: defense orders with ratings of A-2 or higher; Defense Supplies Corporation orders; orders for human food products can linings; orders for making outside can coatings where wood oil is essential to withstand food processing; and orders for uses to comply with Underwriters' Regulations, Health, Sanitary or Safety laws issued by government authority in effect on December 1, 1941.

Sodium Nitrate—Because of an increasing demand and the fact that about 70 percent of our requirements are imported, sodium nitrate has been placed under a complete allocation system in General Preference Order M-62.

Lead—Conservation Order M-38-c embodies sweeping restrictions on the use of lead for civilian purposes, only 50 percent of the amount used in either the third or fourth quarter of 1941 being permitted for such use between January 1 and March 31. At the same time, an amendment to M-63 prohibits the importation of lead except by the Metals Reserve Company, RFC subsidiary.

Imports—Under Amendment No. 2 of General Imports Order M-63, hides and skins, asbestos from South Africa, rapeseed oil, coconut oil, copra, palm oil and tung oil have been added to the 14 materials already prescribed as prohibited from importation except by the Federal Loan Agency or subsidiaries thereof.

Cashew Nut Shell Oil—Use of cashew nut shell oil is forbidden except to fill defense orders with a rating A-2 or higher on brake linings, molding resins to be used for insulating aviation ignitions, and resin solutions for impregnating electrical coils under the terms of General Preference Order M-66.

Plumbing, Heating and Electrical Supplies—Manufacturers of plumbing, heating and electrical supplies may apply for preference ratings on these materials by filing from PD25a according to Suppliers' Order M-67.

Oil Industry Production Material—Priority ratings from A-1-a to A-10 for deliveries of materials to be used in the production, refining, transportation and marketing of petroleum and its products are assured by Preference Rating Order P-98. At the same time new construction or improvement of existing facilities (including service stations) is forbidden by Conservation Order M-68-c. Also, an amendment to M-68 pro-

(Continued on page 60)



WAR TIME IS NO TIME
TO GAMBLE

Grind Your Carbide Tools Right for Maximum Life

Three Types of Norton Wheels Meet All Requirements

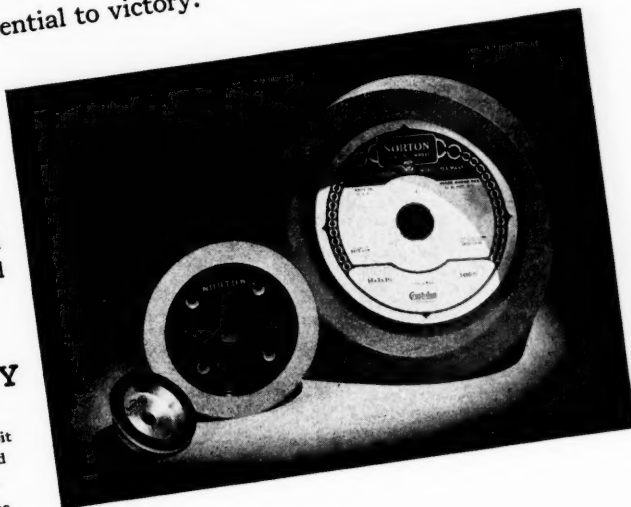
YOU can't afford to take chances today with your cemented carbide cutting tools—every possible minute of useful life from each one is absolutely essential. Therefore you must play safe when you buy tool grinding wheels—must be sure they can do their work right.

From the very first introduction of cemented carbide tipped tools, now so important in armament production, Norton has been a pioneer in developing wheels for grinding them. First it was Crystolon wheels in the proper grain, grade and structure to handle these superhard cutting materials. Then came the first diamond wheel—the Norton Resinoid Bonded—and later the outstanding Norton Metal Bonded Diamond Wheel. Now all three types—each having its special field—are available to users of carbide tools for the production of the many products essential to victory.

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NORTON ABRASIVES

W-854

Important New Industrial Plants and Expansions in the South During January

ALABAMA

BIRMINGHAM—furnace—The Connors Steel Co., 5000 Powell Ave., ordered an electric furnace from Pittsburgh Lectromel Furnace Corporation, foot of 32nd St., Pittsburgh, Pa.; capable of producing 36,000 tons of steel annually.

BIRMINGHAM—expansion—Rust Engineering Co., Martin Bldg., has contract for addition to Spaulding Ore Mines for Republic Steel Corp.; cost \$3,000,000.

CHILDESBURG—buildings—Forecum-James Co., Inc., Derman Bldg., Memphis, Tenn., has contract for constructing 39 powder storage buildings for E. I. Du Pont de Nemours Co., Wilmington, Del.

MOBILE—addition—Van Winkel & Watkins, Peters Bldg., Atlanta, Ga., has contract for addition to steam plant building for Alabama Power Co., Birmingham.

ARKANSAS

Desulphurization plant—McKamie Gas Cleaning Co., Inc., organized recently for erection of desulphurizing plant near McKamie field on east edge of Lafayette county, with R. A. Howe, V. P. and Gen. Mgr., Magnolia, Ark.; offices at 127 Clay St., Magnolia; contract awarded to Girdler Corp., 224 E. Broadway, Louisville, Ky., for materials and construction of plant with capacity of 25,000,000 ft. per day removing the hydrogen sulphide and carbon dioxide; gasoline recovery plant will be constructed in conjunction with the desulphurization plant, for which contract has not been let; this contract will be handled through the office of F. H. Lerch, Jr., Pres. of McKamie Gas Cleaning Co., Inc., 30 Rockefeller Plaza, New York City.

MARCHE—plant—War Department let contract to Little Rock Municipal Waterworks, Little Rock, for supplying water for Maumelle Ordnance Plant; a 16-inch pipeline will connect main supply line of Little Rock system from Lake Winona, for delivery of water; will be 15-miles long, cross Arkansas River and will be divided into four 4-inch sections.

FLORIDA

DUNEDIN—plant—Albert Haworth, 628 Raymond Ave., received contract at \$230,000 for construction of \$1,500,000 citrus concentrates plant for Citrus Concentrates, B. C. Skinner, President.

JACKSONVILLE—building—Southern Bell Telephone & Telegraph Co., Hurt Bldg., Atlanta, Ga., let contract to Barge-Thompson Co., 136 Ellis St., N. E., Atlanta, Ga., for telephone building.

JACKSONVILLE—drydock—Merrill-Stevens Dry Dock & Repair Co., 644 E. Bay St. having site cleared in preparation for construction of drydock and machine shops to equip the local plant for handling Navy repair contracts; 12,000 ton capacity; will be erected by George D. Auchter Co., foot of E. Adams St., at cost of approximately \$1,300,000; Crandall Dry Dock Engineers have been retained to draw plans and specifications; a second but smaller drydock will also be constructed here for operation at Charleston, S. C.

GEORGIA

SAVANNAH—expansion—Savannah Machine & Foundry Company, W. L. Mingle-dorff, President, 632 Indian, received contracts for drydock and other ship repair equipment and enlargement of shipbuilding facilities; contracts total \$3,378,780 bringing total contracts awarded by Navy to nearly \$20,000,000; include construction of 8-mine sweepers, approximate cost \$16,000,000; 5-additional mine sweepers, approximate cost \$2,000,000 each; drydock and ship repair facilities will cost approximately \$2,127,340; shipbuilding facilities approximately \$1,240,440.

Contracts Awarded

SAVANNAH—shipyard—Daniels Construction Co., 824 7th Ave., S., Birmingham, Ala. has contract to complete shipyard at cost of several million dollars; will require 5 months to complete.

KENTUCKY

LOUISVILLE—building—Southern Bell Telephone & Telegraph Co., Hurt Bldg., Atlanta, Ga., let contract to Barge-Thompson Co., 136 Ellis St., N. E., Atlanta, Ga., for telephone building.

LOUISVILLE—rubber plant—Hycar Chemical Co., Akron, Ohio, who have under construction a \$2,750,000 synthetic rubber plant in Louisville, may expand its originally planned 10,000 long tons a year capacity to 30,000 long tons a year, in accordance with recent announcement by O.P.M. to triple productive capacity of four plants now being constructed under Defense Plant Corporation.

LOUISIANA

BATON ROUGE—building—Southern Bell Telephone & Telegraph Co., Hurt Bldg., Atlanta, Ga., let contract to Barge-Thompson Co., 136 Ellis St., N. E., Atlanta, Ga., for telephone building.

NEW ORLEANS—shipyards—Pendleton Shipyard Company, Inc., Pendleton E. Leide, President, let contract to Gervais F. Favrot, Balter Bldg., for construction of shipbuilding plant, Industrial Canal; include construction of two or three ways, four outfitting docks, plate shops, mold loft and several other buildings; Barnard-Godat & Heft, Terminal Station Bldg., Consulting Engrs.; approximate cost \$500,000.

MARYLAND

BALTIMORE—building—Rustless Iron & Steel Corp. let contract to Cummins Construction Corp., 803 Cathedral St., for hammer shop building, 103 Edison Highway; 1-story; metal; cost \$200,000; Oliver B. Wright, 803 Cathedral St., Archt.

BALTIMORE—building—Frantz Construction Co., 10 W. Chase St. has contract for building, 4201 O'Donnell St. for Crown Cork & Seal Co.; Lucius R. White, Jr., Archt., 10 W. Chase St.; cost \$300,000; one story; fireproof; 157x74 ft.

SPARROWS POINT—water line—Bethlehem Steel Co. let contract to Intercounty Construction Corp., Hyattsville, for construction of water pipe line; Whitman, Requaardt & Smith, 1304 St. Paul St., Engr.

MISSISSIPPI

PASCAGOULA—warehouse—Ingalls Shipbuilding Corporation let contract to Brice Building Co., 215 S. 18th St., Birmingham, Ala., for construction of foundation of building; approximate cost \$70,000; private plans.

MISSOURI

ST. LOUIS—factory addition—Shas-serre Construction Co., Fullerton Bldg., general contractor for addition to factory, 4215 Clayton Ave., for Paraseal Corp., 1909 S. Kingshighway, let the following subcontracts: heating, Strong Heating Co., Chemical Bldg.; electric, C. P. Bohe Co., 3808 West Pine Blvd.; plumbing, Arthur E. Maier, 3650 Gravois Ave.; concrete and cement work, George L. Cousins Contracting Co., 850 Rosedale Ave.; brickwork, August Viermann, 4647 S. Broadway; steel sash, Mesh-er Brothers Iron Co., 416 N. 7th St., all St. Louis; Norman I. Bailey, 1909 Kingshigh-way, Archt.; William C. E. Becker, Amba-sador Bldg., Structural Engr.

NORTH CAROLINA

WILMINGTON—freighters—Maritime

Commission let contract to North Carolina Shipbuilding Co., for 53 additional Liberty freighters at cost of approximately \$80,000,000.

SOUTH CAROLINA

CHARLESTON—floating drydock—Charleston Shipbuilding & Drydock Co. let contract to Batson-Cook Co., U. S. Naval Air Sta. and George D. Auchter Co., foot of E. Adams St., both Jacksonville, Fla., at approximately \$1,500,000 for construction of floating dry dock to be towed to Charleston; shipbuilding company now is spending \$1,050,000 in rebuilding and enlarging its plant for constructing 8 seagoing towboats for navy department at cost of \$10,800,000; constructing basin, piers and auxiliary structures.

SIMPSONVILLE—addition—Daniel Construction Co., Anderson, has contract for addition to Woodside Cotton Mill; Poe Piping & Heating Co., Greenville, contract for installing sprinkler system.

TENNESSEE

CHATTANOOGA—building—Southern Bell Telephone & Telegraph Co., Hurt Bldg., Atlanta, Ga., let contract to Barge-Thompson Co., 136 Ellis St., N. E., Atlanta, Ga., for telephone building.

NASHVILLE—building—Southern Bell Telephone & Telegraph Co., Hurt Bldg., Atlanta, Ga., let contract to Barge-Thompson Co., 136 Ellis St., N. E., Atlanta, Ga., for telephone building.

TEXAS

PORT ARTHUR—plant—Lummus Company will construct \$3,000,000 aviation gasoline unit at Gulf Oil Company Refinery; will double plant's capacity of 100-octane gasoline.

VIRGINIA

RICHMOND—building—Laburnum Construction Corporation, 918 East Main St., general contractor for construction of \$300,000 4-story brick building, 8th and Everett Sts., in South Richmond, for Philip Morris & Company, Ltd., let the following subcontracts: steel windows, Detroit Steel Products Co., 1713 K. N. W., Washington, D. C.; heavy timbers (Douglas Fir), Twin Harbors Lumber Co., Seattle, Washington; elevators (freight), Salem Foundry & Machine Works, Salem, Va.; hardware, Tom Jones Hardware Co., 1517 W. Broad; concrete (ready mixed to site), Southern Materials Corp.; miscellaneous iron work, Liphart Steel Co., Westwood Ave. and R. F. & P. R. R.; reinforcing steel, Bowker & Roden, 110 N. 8th St.; electrical work, Chearning & Wilmer, 1100 Hull St.; plumbing and heating, R. C. Beverley Heating Co., 308 E. Main; brick masonry, Southern Brick Co., 929 Myers St.; cast concrete, Economy Cast Stone Co., Belt Blvd. and Petersburg Pike, all Richmond; building will be old fashioned mill type; concrete foundations; brick walls; frame work of Douglas Fir timber; large transformer vault has been constructed; Baskerville & Son, Central National Bank Bldg., Archts.

WEST VIRGINIA

FAIRMONT—plant—Brown Construction Company of Cleveland, Ohio, received contract for concrete footers and floor of \$1,000,000 Defense Plant Corporation's radio tube factory.

SOUTH

Chesapeake & Ohio Railway let contract to American Car & Foundry Co., 28 Church St., New York, for construction of 1,000 50-ton all-steel hopper cars to be built at Huntington, W. Va.; approximate cost of new equipment, \$2,560,000.

Louisville & Nashville Railway Company, Louisville, Ky., let contract to Bessemer (continued on page 50)

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When the Nation hurries, it turns to the telephone

THE country is making over 85,000,000 calls a day right now — local and Long Distance—and that keeps us stepping.

We've added hundreds of thousands of miles in wire and cable and tens of thousands of people to the Bell System. We are doing everything else possible to keep things going smoothly.

But, if once in a while your calls don't

go through as promptly as they did in peace times, please remember that business is not as usual with us. The telephone is tied tight into the war.

P. S. This is a good time to make just a little more certain to give the correct number and to answer promptly. The best time to make Long Distance calls is in the off-peak periods—before 10 in the morning, between noon and 2 P.M. or after 8 in the evening.

Now—more than ever before—LONG DISTANCE helps unite the Nation



FEBRUARY NINETEEN FORTY-TWO

49

New Plants and Expansions in the South

(Continued from page 48)

plant of the Pullman Standard Car Manufacturing Co., 79 E. Adams St., Chicago, Ill., for 1,475 cars valued in excess of \$3,000,000.

Contracts Proposed

ALABAMA

BIRMINGHAM—mine—Sloss Sheffield Steel & Iron Co., 3331 First Ave., North, plans to recondition, equip and reopen Bessie Mine to produce coal; will install new and modern machinery to enable production between 1,500 and 2,000 tons a day.

MOBILE—plant—TVA recommended to Congress construction of elemental phosphorus plants.

MOBILE—dock—Gulf Shipbuilding Corporation plans construction of new \$200,000 outfitting dock for naval units.

ARKANSAS

Arkansas Louisiana Gas Co., 300 W. Capitol St., Little Rock, has option on 40 acres located 1 mile from Macedonia field, for erection of sour gas sweetening plant for Macedonia and Dorcheat fields both in Columbia county gas areas.

Plant—H. K. Thatcher, Director of Washington Office of State Agricultural and Industrial Commission, reported that East Arkansas may be selected as location for \$3,000,000 gas mask charcoal plant.

EL DORADO—pipeline—Barnsdall Oil Company plans construction of pipeline from new Midway oil field to the Ouachita River.

MOUNTAIN PINE—power plant—Dierks Lumber & Coal Company, Jess Rutledge, Manager, plans installation of power plant with turbine capable of producing 1,500 k.w.

RUSSELLVILLE—plant—Smith Mining Company, Dr. R. L. Smith, President, plans construction of refining plant, near Russellville, to manufacture manganese sulfate; will have capacity of 5-tons per day.

FLORIDA

PENSACOLA—shipbuilding—Pensacola Shipyards & Engineering Corporation acquired about 96 acres of the old Pensacola Shipbuilding Corporation property on Bayou Chico; plan rehabilitation of yards and buildings and laying keels for ships.

GEORGIA

ATLANTA—expansion—Southern Bell Telephone & Telegraph Co. has installation under way of a telephone system at Atlanta general depot and repair shops near Conley; will contain 600 stations by March 1 and ultimately to exceed 1,000 stations; service will be provided by 3 switchboards connecting to Calhoun station by 40 truck lines; approximate cost \$185,000,000.

HOGANSVILLE—factory—United States Rubber Co., H. Gordon Smith, Gen. Mgr., plans erecting factory adjacent to its Stark Mill for manufacture asbestos yarn and fabrics.

MARIETTA—bomber plant—Bell Aircraft Corp., William J. O'Connor, counsel for company, reported, to erect \$15,000,000 bomber plant at Marietta airport; will manufacture Boeing bombers.

LOUISIANA

Recycling plant—Phillips Petroleum Co., Texas Co., Humble Oil and Refining Co. and Tide Water Associated Oil Co., represented by Dan Debaillon, Lafayette, plan erection of gas recycling plant in Erath oil field in Vermilion Parish; approximate cost \$2,000,000.

NEW ORLEANS—exchange—Linson R. Evans, plans erecting exchange building, Burdette and Hickory Sts. for Southern Bell Telephone & Telegraph Co.

MARYLAND

BALTIMORE—ship repairing—Navy Department acquired properties of Booz Bros., Inc., Redman-Vane Shipbuilding Co. and Baltimore Ship Repair Co., Inc., occupied by Baltimore Marine Repair Shops; will be

leased to Bethlehem Steel Co.'s shipbuilding division; expansion program involves: Immediate razing of whole area occupied by the 3 concerns; construction of additional piers for repairs of deep draft vessels; dredging harbor adjacent to the expansion area to a depth to provide access by large vessels, etc.; \$4,300,000 made available by navy; will move some equipment to ship repair yards of Bethlehem Co. at Fort McHenry; build complete new cradles for ships; rail ways modernized; new shops erected along with the piers.

BALTIMORE—foundry—American Brake Shoe & Foundry Co., 2001 Laurens St., receiving bids, no date set, for foundry; private plans; following are prospective estimators: Consolidated Engineering Co., Inc., 20 E. Franklin St.; Austin Co., 19 Rector, New York; Rust Engineering Co., Clark Bldg; Pittsburgh, Pa.

BALTIMORE—plane manufacturing plant—Baltimore Fisher Body Co., 2122 Broening Highway, division of General Motors Corp., Detroit, Mich., will manufacture planes for U. S. Navy.

FAIRFIELD—carpenter shop—Bethlehem Fairfield Ship Yard, Inc., receives bids Jan. 31 for carpenter shop; Cummins Construction Corp., 803 Cathedral St., Baltimore, and Irwin & Leighton, 1505 Race St., Philadelphia, Pa., estimating.

TOWSON—addition—Bendix Aviation Corp., Bendix, N. J., receives bids Feb. 6 for addition to factory, Joppa Rd.: 1-story; brick; H. E. Beyster Corp., Engr., 1144 Kensington Gr. Pte., Detroit, Mich.; following are prospective estimators: Cogswell Construction Co., 406 Park Ave., Baltimore, Md.; John W. Ryan Construction Co., 369 Lexington Ave., New York.

MISSISSIPPI

BILOXI—sheds, etc.—Biloxi Port Commission, 412 Reynold St., receives bids January 28 for construction of sheds, launching ways, hauling-out ways, pier and other construction at Biloxi Shipbuilding plant; I. Daniel Gehr, Tucei Bldg., Archt.

MISSOURI

KANSAS CITY—extension—Waggoner Paint Co., division of Pratt & Lambert, Inc., Tenth St. and Burlington Ave. in North Kansas City, acquired tract, 325x150 ft. for possible extension.

NORTH KANSAS CITY BR. KANSAS CITY—addition—American Brake Shoe & Foundry Company plan erection of two additions will be 70x100-ft.; machine shop and cleaning department will be enlarged with a unit 60x80-ft.; both brick construction and cost \$94,999.

POPLAR BLUFF—mining—Missouri Cliffs Mining Co. acquired Chapman-Doane Co.'s interests in Poplar Bluff; develop iron ore deposits.

NORTH CAROLINA

Tap line—Duke Power Company, Durham, Charles Burkholder, Vice-President, has preparatory work under way for proposed construction of tap line, which will directly convey current from Dukeville plant and main trunk line of company through Lexington to High Rock and High Point line.

DURHAM—expansion—American Telephone & Telegraph Company and Southern Bell Telephone & Telegraph Co., were authorized by Federal Communications Commission to spend \$512,000 in supplementing facilities between Durham and Selma.

WHITEVILLE—canning plant—Roanoke Canning Co. will locate canning plant at old Glanton Veneer Co.'s site; Sid P. Childress in charge.

WILMINGTON—dry dock—Government, reported, considering construction of a \$2,000,000 Navy drydock either at Wilmington or Southport.

OKLAHOMA

ENID—expansion—Champlin Refining Co., reported, expend \$1,500,000 in improvements to processing equipment at refinery to produce higher octane aviation gasoline.

ORLANDO—carbon black—Charles Eneu Johnson & Co., Guthrie, will have hearing Jan. 26 on proposal to establish carbon black plant near Orlando; use residue gas from a natural gas plant of Shell Petroleum Corp. located near Orlando.

TULSA—expansion—War Department,

reported, plans expanding the \$22,000,000 bombing plane assembly plant to 2½ times its present size; Douglas Aircraft Co., Santa Monica, Calif. operators.

SOUTH CAROLINA

SPARTANBURG—cannery—J. B. McCrary Company, Inc., 22 Marietta Street Bldg., are engineers for construction of \$125,000 peach cannery and storage plant, on U. S. Highway No. 176 between Spartanburg and Asheville, for Spartanburg County Farmers Market, Tracy J. Gaines, Chairman, Inman; includes canning plant with capacity of about 200,000 cases of peaches; cold storage plant comprising from 250 to 300 storage lockers of standard size; meat curing room; common storage room and warehouse space; federal grant of \$100,000 approved.

TEXAS

Expansion—Southwestern Bell Telephone Company, Dallas, plan to spend \$4,761,000 on new equipment to supplement that now being used over a 427-mile area between Dallas, Houston and San Antonio.

Ship Ways—San Jacinto Shipbuilders, Inc., Houston, plans construction of five sets of marine ways, south of Brinson Point, two miles north of La Porte; each way 400-ft. long.

AUSTIN—expansion—East Texas Salt Water Disposal Corp., estimated cost of putting into effect proposed salt water disposal system in East Texas field as \$4,000,000; some will include \$1,000,000 representing the value of 47 independent units now in operation in the field, which will be merged into the large system.

DAINGERFIELD—blast furnace—Office of Production Management approved a \$10,000,000 loan to Southwestern Iron, Steel & Coke Co., John W. Carpenter, president of Texas Power & Light Co., Dallas, chairman, for construction of a blast furnace near Daingerfield, to produce 700 tons of iron and steel daily.

DALLAS—improvements—Dallas Power & Light Company and Dallas Gas Company, Frank R. Schneider, Utilities Supervisor, City Hall, propose improvements totaling \$185,000; power company plans spending \$51,000 for transformers, \$80,500 for extensions, service lines and meters, expect to add 2,800 new service lines to residences and buildings; gas company plans spending \$18,000 for short main extensions; \$15,000 for new meters and \$12,000 for laterals from mains to meters.

HOUSTON—expansion—Brown Shipbuilding Co., plans expansion of shipbuilding plant on Greens Bayou; received contract from Navy for building of 18 escort vessels; total cost of which is \$80,000,000.

HOUSTON—expansion—The Ensco Derrick & Equipment Company, Garden Villas, C. L. Lamkin, plant manager, plans expansion program to increase production 100%; includes addition to present galvanizing plant at cost of approximately \$20,000; approximately \$35,000 worth of galvanizing equipment to be bought; increase floor area of plant 40%.

HOUSTON—expansion—Houston Lighting & Power Company plans expansion program; received priority rating from OPM for a 35,000 k.w. turbine for new plant.

ORANGE—expansion—Consolidated Steel Corporation of Texas, Capt. Harry B. Hird, Vice President and General Manager, plans \$5,000,000 expansion to yards, because of contract recently received for construction of new fast type escort vessel.

TEXAS CITY—improvements—Monsanto Chemical Co., St. Louis, Mo., recently acquired sugar refinery, will convert building for manufacture of chemicals for synthetic rubber.

TEXAS CITY—smelter—M. V. Billeton-Maatschaplj, making arrangements to enlarge size of tin smelter under construction so that ore concentrated brought in from Bolivia can be processed in quantities sufficient to yield 30,000 tons annually; plant will probably be in operation about April 1.

TEXAS CITY—toluene plant—Pan-American Refining Corp., Dr. Robert E. Wilson, Pres., reported, plans installation of plant to extract toluene from hydroformer gasoline.

(Continued on page 62)



THIS WAR CAN'T LAST FOREVER!

SOMEDAY the world will regain its sanity. Someday peace will return. Someday the deafening pandemonium of war will fade into a terrifying stillness. Then what?

Then will come the painful shift from a war-time to a peace-time economy.

Then will come trying days for American industry; days when every minute factor that enters into the cost of production and distribution must be wisely weighed and wisely employed by every industry.

Then will come a new era for the Southland. For in the states served by the Southern Railway System, industry will find the answer to the vital problem of producing and distributing at cost levels fitted to America's post-war economy.

And when that day comes, the Southern Railway System will be ready—ready with the best in transportation services; ready to work hand in hand with Southern industry in the building of a brighter, happier world—because then, as now and for the past half century, the "Southern Serves the South."



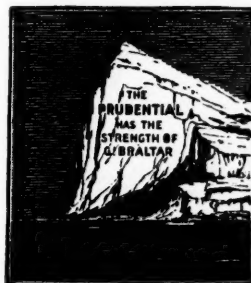
SOUTHERN
RAILWAY SYSTEM



"Well, that's done!"

An expression of heartfelt satisfaction often used by a man who has just protected his family with needed life insurance.

See our "Modified" policies
for low cost



The Prudential
Insurance Company of America
Home Office, NEWARK, N. J.

Help Needed For Automobile Dealers

Editor, MANUFACTURERS RECORD:

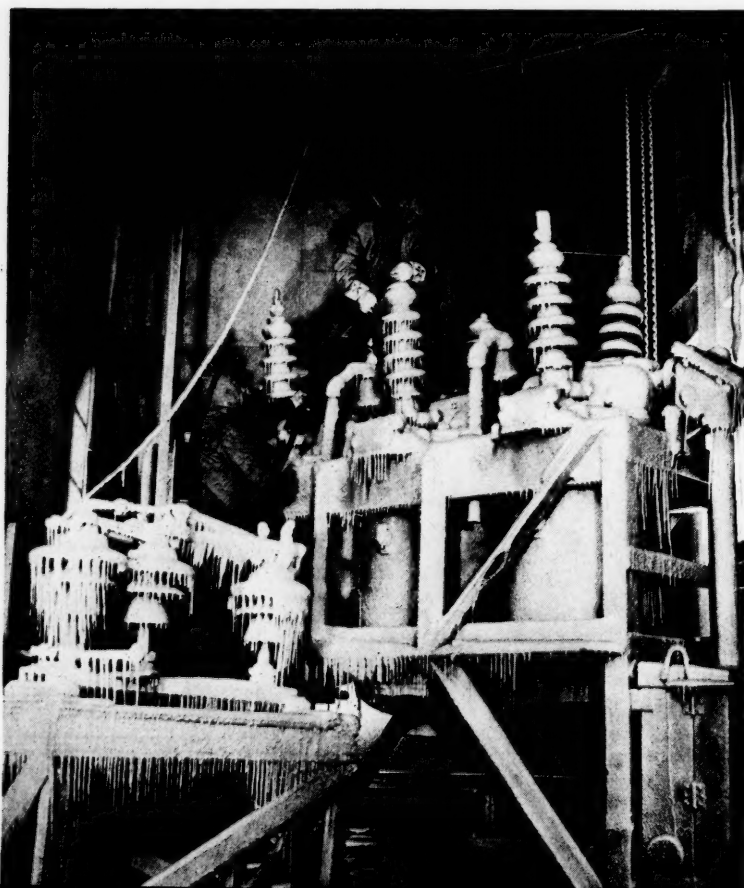
I would like to suggest that you can help the automobile dealers throughout the land at this time. They need some means of putting to work the men they have had to lay off. They need some means of activity which will create a continued, profitable conduct of their business. Many of them have, or can get, sufficient space in which to produce different products. Their problem appears to be the matter of getting knowledge of what defense products they might manufacture; what machinery they might need in this type of manufacture; list of available used, but workable machines suitable for such production; some means of co-ordination between the purchasing departments of the government and automobile dealers and garage men who are interested. (The above suggestion follows a recent conference with several of our local automobile dealers.)

It is possible you have the same problem in Baltimore. However, you have the manufacturer's interest closer by.

There are many towns like Ocala and very little industry to absorb the surplus manpower.

FLORIDA LIME PRODUCTS CO., INC.
W. H. MEFFERT.

Icicles form rapidly on the circuit breakers in the Westinghouse laboratory at East Pittsburgh where engineers last month threw electrical knockout punches of 2,000,000 kilowatts to demonstrate improved power system defenses against lightning or short circuits caused by bombing and sabotage. In demonstrating how such power is tamed by circuit breakers and safety fuses, man-made torrents of test power cut 20-ft. fiery paths through the air, exploded old type fuses with detonations like shell fire, and shattered 6 in. timbers into kindling wood



The all welded S.S. Pascagoula, formerly known as the S.S. African Merchant, after launching at the Ingalls Shipbuilding Corporation's Pascagoula, Miss., shipyard. Originally constructed for the United States Lines to operate as a passenger-cargo vessel between New York and London, the ship's dimensions are: 489 feet long; 69 feet 6 inches moulded beam; 18,000 ton displacement; and has a speed of approximately 18 knots

Army Plans To Double Shoe Procurements

Army shoe procurements will be more than doubled starting next May, the War Department has announced. Present purchasing plans call for "stepping up" service shoe procurements to two and a half million pairs a month, or a little more than twice as many as are now being bought.

As an intermediate step to the actual

"doubling up" procedure, army shoe purchases during the months of March and April will approximate two million pairs.

"Iron Men and Their Dogs"

Bartlett Hayward Company, Baltimore, has an old and honorable history. It is now a division of the Koppers Company which brings it into a wider field of work and opportunity.

Bartlett-Hayward could always make anything out of iron. The buildings they erected in former times were known as iron buildings, and their products ran all the way from castings of intricate, delicate iron tracery for decorative purposes in the style that prevailed, to huge gas containers and water tanks sometimes of as much as 10,000,000 cubic feet capacity.

Now they are filling their part in the war program as they did in World War No. 1, when they had large orders from foreign governments as well as our own for munitions.

The business has expanded from its beginning in 1840 to a giant industry. The company manufactures gates and valves for huge dams, bronze pipe, gun carriages for anti-aircraft guns, catapults for launching airplanes from boats, manganese bronze propellers, and a long list of heavy products that only can be made by plants equipped for the purpose.

Good work well done evidently has been the activating motive. One hundred year industries, passing through vicissitudes and changes that attend such a long record, do not just happen. They have a tradition which is their pride, and they live up to it.

A history of the firm and its accomplishments has just been published in an attractive volume—"Iron Men and Their Dogs" (dogs of iron were made for lawn decorations). The work is an interesting human document of success. Interwoven in it is some of the early history of Baltimore, and it is safe to say it will be preserved not only by those who like to read of men's successes, but an engaging tale of the transition of a fundamental business which filled the needs of an earlier day, to a huge industry performing a vital part in the country's war effort.

Big Enough for the Job—



One of two 126'2" x 7'4" deep steel girders for an overhead electric travelling crane at the Fairfield plant of Tenn. Coal, Iron & Railroad Co. Weight 52 tons. Fabricated at Birmingham plant of Virginia Bridge Co.

Big enough for the job has a special meaning in meeting today's demand for unusual performance. At Virginia Bridge plants it means extending production to maximum-plus proportions to meet the construction schedules of our customers. Every day gives proof of our ability and capacity to meet unusual performance demands.

To the maximum capacity of our three plants at Roanoke, Birmingham and Memphis, conveniently located to best serve construction in the South and Southwest, we offer the efficient and dependable fabricating and erecting service that has made Virginia Bridge an outstanding name in the steel industry.

Virginia Bridge

STEEL STRUCTURES
ALL TYPES



VIRGINIA BRIDGE COMPANY

Roanoke Birmingham Memphis New York Atlanta Dallas

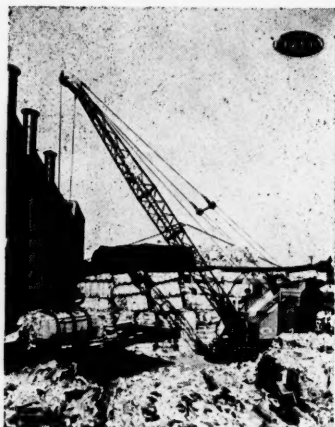
UNITED STATES STEEL

FEBRUARY NINETEEN FORTY-TWO

53

P&H Crane Cuts Handling and Storage Costs

By use of a P&H Crawler crane, the Hummel & Downing Company, Milwaukee, Wis., manufacturer of paper and paper products, was able to cut handling and storage costs 40 per cent, it is claimed. Advantages reported over previous handling methods, the portable



hoist method, is that by higher piles they can store 8,000 to 10,000 tons in a 420-foot by 100-foot area which had formerly accommodated only 2,800 to 3,000 tons. Also, when baled paper comes in by truck, it can be moved directly to storage position by the crawler crane. The special bale grab is easily detached, leaving the crane available for other use.

IF FLOORS MUST BE CLEAN, use MAPLE

Maple looks clean, *is* clean, and mere brushing *keeps* it clean, when properly finished. That's why it's the preferred flooring in food and similar plants from coast to coast.

It's so compact and smooth that dirt doesn't stick. Most abrasive wear doesn't alter Hard Maple's smoothness—creates no dust—because the grain is so tight, the fiber so tough. And because it wears so slowly (and is warm, dry, comfortable, traffic-fast) heaviest-duty

New Methods and Equipment

"Slat-Rack" Cushion Flooring

Designed for use where people have to stand on wet or slippery surfaces, a new safe, resilient cushion flooring known as Slat-Rack has been introduced by the American Mat Corporation, Toledo, Ohio. Slat-Rack is made of oil treated hardwood, sturdily mounted on live, tough, durable rubber supports with integral studs, locked to the wood by metal pins. The flexible rubber supports which cushion the wood, always follow the contour of the floor so that the flooring lies perfectly in contact with an uneven surface and does not tilt or creep when walked upon. The flooring is made in widths to meet installation requirements, and where required to prevent tripping, tapered end or side toe boards can be furnished.

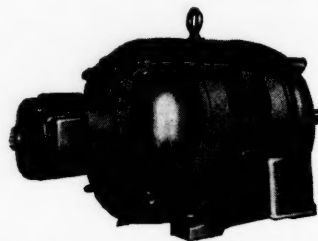
New Wales Punch and Die Holders

New patented narrow compact Wales punch and die holders have been announced by The Strippit Corporation, Buffalo, N. Y. These models punch 3/16-

inch maximum holes on a minimum center to center distance of 5/8-inch with shut height of 6 1/4 inches. The same exclusive features that have sold Wales Hole Punching Dies throughout the metal working industry, it is declared, have been built into these new Naropunch models, which are available in a wide range of standard and special sizes, capacities and models.

Century Electric Alternating Current Generators

New, compact, stream-lined, revolving field, alternating current generators have been introduced by the Century Electric Company, St. Louis, Mo. These generators are available in sizes from 7 1/2 to 75 KVA—4, 6, or 8 pole, 1800, 1200 or 900



RPM, 60 cycle, (corresponding speeds for other frequencies) for belt or coupling drive or flange mounting. They are offered for continuous duty in isolated plants, or to supplement other available power supply, and are built to meet AIEE and NEMA voltage regulation standards.

Wabash Blackout Bulb

Designed for blackout lighting in air raids, a Wabash blackout bulb, announced by Wabash Appliance Corporation, Brooklyn, N. Y., provides down-lighting in a soft beam of blue light that is declared safe for indoor visibility during



plants today find they're money ahead with Maple.

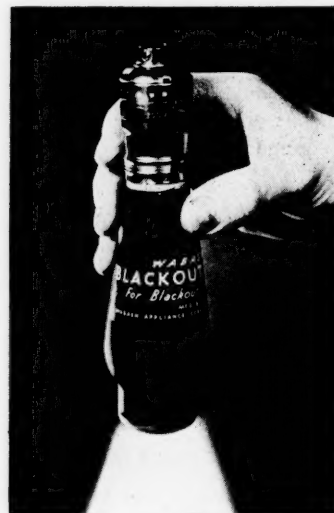
Get *full facts* on floors before you build or remodel. Ask your architect about MFMA Northern Hard Maple, in strips or blocks. See Sweet's, Sec. 11/82.

MAPLE FLOORING MANUFACTURERS ASSOCIATION

1797 McCormick Building, Chicago, Ill.

Floor with MFMA Maple

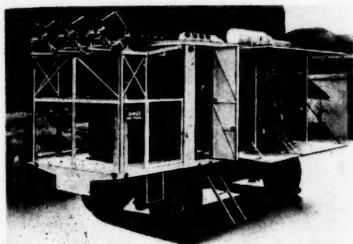
(N O R T H E R N H A R D)



ing blackouts. The bulb is lined inside with a pure silver reflector lining that hides all filament glare and projects the light downward. Light leaks are prevented by a black silicate coating that covers the bulb up to the extreme lighting end which is a deep blue. The new bulb consumes 25 watts.

Mobile Generating Plants

Ready-Power mobile generating plants—complete central station power-houses on wheels—make available to industry, public utilities and Governmental agencies a portable power supply system that may rapidly be transported and made available for instant power generation wherever needed. These units which carry two 50 KW Ready-Power International Diesel engine electric plants, a complete switchboard, fuel oil storage tank, electric fuel transfer pump, lubri-

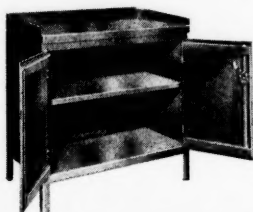


The mobile Ready-Power International Diesel engine electric plant

cating oil rectifier, starting batteries, station transformer and both AC and DC station lighting systems, have been announced by The Ready-Power Company of Detroit, Mich. The plant is completed by a substation with transformer, lightning arrestors and air brake switches, although for emergency use the high tension substation equipment would hardly be required. The plants may be operated alone or in parallel with other mobile plants or as "boosters" in parallel with central station power.

Machine Tool Cabinets

A handy work bench-cabinet featuring security and all-around usefulness has been introduced by Lyon Metal Products, Inc., Aurora, Ill. Finished in Lyon Green baked enamel, the unit offers a heavy



Lyon Metal Machine Tool Cabinet

gauge working surface which is said to be ideal for small vises and grinders. Twelve square feet of enclosed storage area are protected by full swinging triple latch doors equipped with padlock hasp or built-in flat key lock. The center shelf is adjustable.

New "Blackout" Development

The Midland Glue Products Company, Detroit, Mich., announces its newest development regarding blackouts, the procedure being best accomplished, it is stated, by first painting with black paint, and then applying Midland No. 222 blackout glue to the window panes and adhering waterproof paper, cardboard, fibre or some such material. In this way, it is claimed that the glue acts as a shatterproofing agent in the event of bombings.

HOW'S THIS FOR *Stepping-Up* PRODUCTION?

YOU, too, can accelerate your rate of production as rapidly as you release man-power from handling labor. Any mechanical means of lifting and carrying even light loads reduces fatigue and thereby makes possible a greater output per man.

This is only one of many advantages gained with American Monorail Handling Systems . . . to mention a few others — reduction in idle machine time, more compact arrangement of machinery and equipment, congested operating conditions overcome, and waste space converted into profitable space. **BUT STEP UP PRODUCTION YOU MUST.** Let an American MonoRail engineer show you how it can be done in your plant. American MonoRail equipment is engineered to meet the particular requirements of each problem. There is no delay or shut down during installation.

CASE "A"

Reduction of 64% in man hours in one single operation

CASE "B"

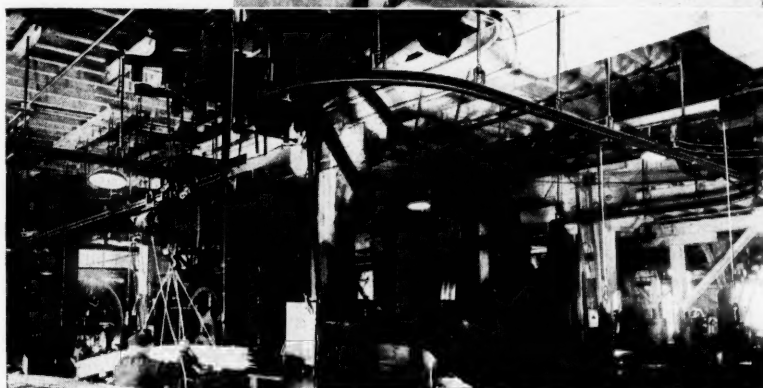
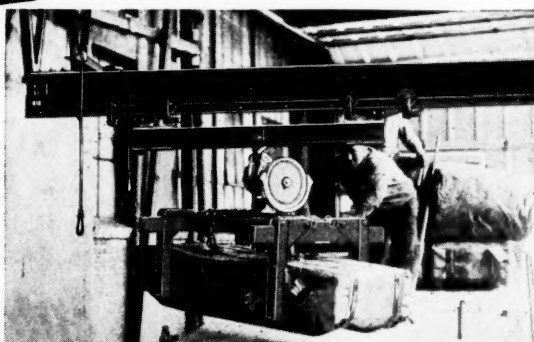
Increase from 20 to 80 tons of steel handled in a day

CASE "C"

Production increased 30%

• Trucks unloaded in 1/3 former time.

• Overhead tracks bring metal to machines in compact arrangements.



THE AMERICAN MONORAIL CO.

13118 ATHENS AVENUE

CLEVELAND, OHIO

Industrial News

Ironton Fire Brick Company Officers

At the annual meeting of The Ironton Fire Brick Company, Ironton, Ohio, held January 22, the following officers were elected: E. F. Myers, President, Treasurer and General Manager; C. E. Bales and W. P. Lewis, Vice Presidents; William D. Lewis, Secretary. Having an excellent volume of business in 1941, the company carried out a substantial expansion program, building a new dry floor, machine and mold shop, paved stock shed, installed Clearfield mixer in the dry press department, made alterations to tunnel dryers, and expanded laboratory facilities. Additional expansion is planned for 1942.

Norton Company Appointments

R. D. Lawson has been appointed salesman by the Machine Division, Norton Company, Worcester, Mass., for northern New England, including the states of Vermont, New Hampshire, Maine and parts of Massachusetts and Rhode Island. He succeeds W. E. Wickstrom who takes over sales engineering work at the main office in Worcester. James K. Stevenson and Paul F. Sparrow have been appointed salesmen for the Refractories Division and will have their headquarters in Chicago and Pittsburgh, respectively.

Eppinger and Russell Standardize on Du Pont Timber and Lumber Treatment

The Eppinger and Russell Company, with lumber and timber treating plants at Jacksonville, Fla., and Long Island City, N. Y., has standardized on the Du Pont Chromated Zinc Chloride (CZC) Process for pressure treating lumber and timber. This is in addition to the standard Eppinger and Russell Cresote Treatment. Lumber treated with Du Pont Chromated Zinc Chloride is claimed to possess many advantages as a building material, durability and low maintenance cost make it popular with economical buyers. It is clean, paintable and odorless, resisting decay and termite attack.

Hendrick Manufacturing Company Officers

The board of directors of the Hendrick Manufacturing Company, Carbondale, Pa., has elected the following officers, effective January 14: K. H. Colville, President; W. B. Stoddard, Vice President and Treasurer; W. J. Hamilton, Secretary, and D. L. Bassett, Assistant Secretary.

Grace Awarded Bessemer Gold Medal

E. G. Grace, President of Bethlehem Steel Company, has been awarded the Bessemer Gold Medal for 1942 by the British Iron and Steel Institute in recognition of his achievements in "fostering collaboration between the steel industries of two leading nations in a great world crisis," according to announcement by the British Press Service, New York City.

Founded in 1874 in honor of Sir Henry Bessemer, the Medal has been awarded previously to only three other Americans—Andrew Carnegie, Charles M. Schwab, and Albert Sauer, who was the first American metallurgist. Mr. Grace was notified of his award in Washington by Ian Elliott, member of the Council of the British Iron and Steel Institute, acting upon cabled advice from John Craig, President of the Institute in London.

Graduating from Lehigh University in 1899, Mr. Grace entered the employ of the Bethlehem Steel Company at its plant at Bethlehem, Pa. During his presidency of the company, the ingot capacity of the corporation has risen from 950,000 net tons to more than 12,000,000 tons, becoming the second largest steel producing organization in the world, now employing more than 190,000 workers.

Moves Offices From New York to Louisville

The Ranney Water Collector Corporation of New York, developers of the radial well method of water collection, has transferred their main offices from New York to Louis-


ville, Ky., effective January 15. At the same time, N. F. Gildden, Jr., vice president, announced that the name of the company has been changed to The Ranney Company, Inc. New offices are in the Heyburn Building, Louisville.

Ezra Frick

One of the more prominent engineers in the refrigeration industry, Ezra Frick, President of Frick Company, Waynesboro, Pa., died at his home at Waynesboro on February 2, just three weeks after celebrating his 86th birthday. Mr. Frick was born in Ridgeville, near Ringgold, Md., the third son of George Frick who had established himself about the middle of the century as a builder of steam engines. In 1860 the Frick shops were moved to Waynesboro and in 1880 the company moved its operations to a large new plant and added Frick Corliss engines to its line of machinery. After serving as foreman of the erecting department, Ezra Frick became general clerk and then purchasing agent. In 1896 he became general manager of the company, holding that office until 1928, serving for a part of the time both as general manager and treasurer. He was elected president of the company in 1924 and held the office until his death. One of the charter members of the American Society of Refrigerating Engineers, he served as president in 1918.

Celebrates 50th Anniversary

LOUIS MÖLLER, President of the Anderson & Ireland Company, Baltimore, Md., celebrated his 69th birthday anniversary on October 12 and completed a half century in the hardware business on January 20, 1942. On January 27 the Hardware Club of Baltimore and its associated members of Washington, D. C., and Alexandria, Va., honored Mr. Möller with a dinner at the Emerson Hotel, Baltimore. Joining Anderson & Ireland Company in 1892, Mr. Möller's first duties were those of entry or billing clerk. In 1900 he took over the position of bookkeeper, serving until the death of Mr. Ireland in 1903. In 1905, he purchased the interests of the Ireland family and became sole owner of the company stock and has been president of the company since that time. The business was established in 1865 and is said to be the second oldest commercial establishment in Baltimore and the seventh oldest in the United States.



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Trade Literature

EXPANSION JOINT

Bulletin No. 35-15B—14 pages, devoted to the ADSCO Piston-Ring Type, Model A Expansion Joint which can be unpacked and repacked under full operating pressure without interruption to service; details of construction, dimensions, specifications, etc., are presented on this joint, which is made in sizes 2-20 inches for all pressures up to 400 pounds.

American District Steam Company, North Tonawanda, N. Y.

MAGNETIC CRANE CONTROL

Booklet 930—illustrating and describing two new systems of control for A-c cranes—EC&M Dynamic Lowering Control and EC&M Contra-Torque Lowering Control. Made possible by the EC&M Frequency Relay, these systems are declared to produce results previously impossible to attain on A-c wound-rotor motored equipment.

The Electric Controller & Manufacturing Co., Cleveland, Ohio.

CAST IRON PIPE NEWS—Cast Iron Pipe News for January, 1942, published by The Cast Iron Pipe Research Association, Chicago, Ill., features an article on the installation of more than 46 miles of cast iron pipe used for the Army Ordnance plant under construction at Childersburg, Ala. The plant is being built by E. I. du Pont de Nemours & Company as contractors, who will also operate it for the United States Army.

PRESSURE-TREATED WOOD FOR HOUSING

Leaflet—"Pressure-Treated Wood For Permanent Low Cost Housing," illustrations showing construction for low-cost houses without basement, parts of building which need protection against decay and fungus, and treatments suggested for painted and unpainted wood; also discusses United States Housing Authority recommendations for preservative treatments.

Wood Preserving Division, Koppers Company, Pittsburgh, Pa.

REX HANDLING CONVEYOR—

Bulletin No. 410—REX bulk handling conveyor catalog, illustrating and describing REX belt conveyors, REX apron conveyors and REX bucket elevators.

Chain Belt Company, Milwaukee, Wis.

OVERHEAD MATERIALS HANDLING EQUIPMENT—

Booklet No. 2008-A—"Cleveland Tramrail Engineering and Application Data," illustrating and describing a versatile line of overhead materials handling equipment that has solved many and varied handling problems.

Cleveland Tramrail Division, The Cleveland Crane and Engineering Company, Wickliffe, Ohio.

ANTI-SLIP STAIR TREADS, ETC.—

Folder—illustrating and describing the new Ten-Lox anti-slip stair treads, thresholds and floor tile—"the answer to permanent safety under foot."

The National Bronze and Aluminum Foundry Company, Cleveland, Ohio.

PROTECTIVE COATINGS—

Booklet—devoted to the Tocol line of protective coatings for the protection of raw materials, plant and equipment, etc.

Protective Coatings, Inc., 10391 Northlawn, Detroit, Mich.

FOR FINDING RIGHT FLEXIBLE SHAFT COUPLING—

Chart—designed to aid those without technical training to find easily and quickly the right flexible shaft coupling, for his use, for light or heavy duty, size, bore, exact coupling for his horsepower and r.p.m., kind of load cushions for the conditions of operation, price, etc.; L-R Selector Charts supplied to the industry by—Lovejoy Flexible Coupling Company, 5001 West Lake Street, Chicago, Ill.

HEROULT ELECTRIC FURNACE—

Booklet—"The Heroult Electric Furnace," illustrating and describing this modern equipment for steel mills and foundries, the unit embodying the latest in mechanical and electrical equipment and described as "rugged, dependable, efficient, and suited to a wide variety of uses."

American Bridge Company, United States Steel Corporation Subsidiary, Pittsburgh, Pa.

"Sewer Facts"—This publication, which has been described by many engineers and contractors as "practically a text book on sewer construction," contains 72 pages of charts, pictures and other factual information. It presents discharge tables for various sizes of vitrified clay pipe as well as standard A.S.T.M. specifications and methods of use. In its fifth edition, the book is published in standard engineering file size with a binder which makes its use convenient on drafting tables.

Southern Clay Pipe, First National Bank Building, Atlanta, Ga.

CRUSHING MACHINERY—

Booklet—"Hard Hitting 'Pennsylvania'" illustrating and describing "Pennsylvania Impactors" designed for economic reductions of industrial minerals, commercial stones and refractories, etc.;

Folder—illustrating and describing reduction by direct impact with the use of the "Pennsylvania Impactor";

Bulletin 1030—illustrating and describing reversible "Pennsylvania";

Bulletin 2006—illustrating and describing "Pennsylvania" Single Roll Crushers;

Bulletin 9000—illustrating and describing the "Pennsylvania Granulator."

Pennsylvania Crusher Company, Liberty Trust Bldg., Philadelphia, Pa.

Lockwood's Directory of the Paper and Allied Trades—All paper, ground wood pulp and chemical fibre mills of the United States, Canada, Cuba and Mexico are geographically arranged and fully described in the 1942-67th annual edition of Lockwood's Directory, now on sale. The publication presents the name of the company, location of mill, names of officers and operating executives, and indicates whether the plant is a paper mill, ground wood pulp mill, sulphite pulp mill, sulphate mill or soda pulp mill. It also notes the types of mill equipment, kind of power used, whether water, steam or electricity, and tells of products manufactured, with total production in pounds per 24 hours. In addition, there is much other valuable information, including reports of the paper and pulp mills in South America and Trinidad, with data on the glazed, coated paper and board manufacturers. Lockwood's Directory is published by Lockwood Trade Journal Company, Inc., 15 West 47th St., New York, N. Y.

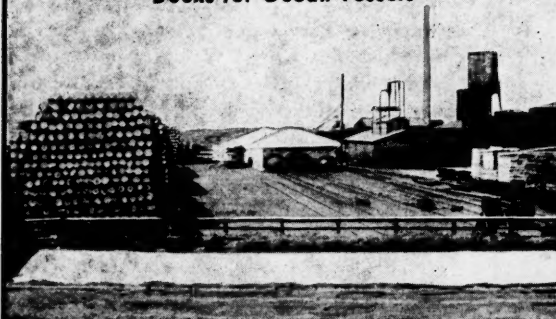
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ESTABLISHED 1854
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Priorities

(Continued from page 46)

vides for the completion of wells in process of drilling when the order was issued on December 23, 1941. Similarly Amendment No. 2 to M-68 permits completion of natural gas wells in Kentucky, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia and West Virginia which had actually been started on or before December 23.

Distilled Spirits—General Preference Order M-69 provides that all distilleries which have the facilities to manufacture 190 proof ethyl alcohol from corn or grain shall use them only in the production of that type of alcohol.

Fats and Oils—Relaxation of General Preference Order M-71 is provided for processors of fats and oils in Amendment No. 1 which states that no processor may produce more of his product than is required to fill his orders and give him a practicable minimum working inventory.

Tin and Lead Scrap—Tin and lead scrap are subject to provisions of Priorities Regulation No. 1 under the terms of General Preference Order M-72 by which monthly reports are mandatory and no scrap dealer may accept deliveries if they exceed the amount disposed of during the preceding sixty days.

Mercury—Conservation Order M-78 restricts the use of mercury and lists the articles for which varying amounts may be employed. Orders carrying a rating lower than A-1-j will be limited to 80 percent of the consumption in the first quarter of 1940 or 1941.

Asbestos—Use of South African asbestos is prohibited by Conservation Order M-79 except to fill defense orders for specified purposes only.

Hemp Seed—General Preference Order M-82 prohibits the use of domestically produced hemp seed for any purpose except the growing of hemp fibre or the growing of additional seed.

Machine Tools—General Preference Order E-1-a, covering machine tools, which was suspended by Amendment No. 1, has been issued in revised form and replaces Supplementary Order No. 1 to General Preference Order E-1.

Tin and Lead Foil—Order L-25, having become unnecessary as a result of restrictions imposed by Orders M-43-a and M-38-c, was revoked January 15.

Steel for Office Furniture—Amendment No. 1 of Limitation Order L-13 provides an extension until March 31, 1942, of the curtailment in the use of steel for office furniture.

New Passenger Cars and Trucks—Amendment No. 1 to Supplementary General Limitation Order L-3-e is a modification of the original order to take care of three classes of strictly defense buyers. Supplementary General Limitation Order L-3-f supplements Order L-2-g and jointly prohibit the manufacture of passenger automobiles and light trucks. Amendment No. 3 to Limitation Order L-1-a authorizes a 34 percent increase in production of medium and heavy trucks during March over the same month last year but they may not

be equipped with tires or tubes. An A-3 rating is provided for materials entering into the production of these trucks.

Radios—Limitation Order L-44 provides for an average monthly curtailment in the radio manufacturing industry's production for 90 days from January 24 of more than 40 percent below the monthly output during the nine months ended September 30, 1940. The order does not apply to defense contracts or those with a rating of A-1-j or higher.

Truck Bodies—Under Limitation Order L-35, producers of spare parts for trucks, truck trailers, passenger carriers and school bus bodies may make during the first quarter of 1942 60 percent of the number of parts sold by them for replacement during the last half of 1941. An A-3 rating is assigned to materials entering into the manufacture of these spare parts.

Fire Fighting Apparatus—Preference Rating Order P-45 assigning a rating of A-2 for materials to be used in fire fighting apparatus has been extended to February 28.

Furnaces for Treatment of Metals—Under Preference Rating Order P-74 an A-1-c rating may now be applied by manufacturers of furnaces for the heat treatment of metals to the material for production of repair and replacement parts to fill defense orders.

Machine Tools—Makers of machine tools using A-1-a, A-1-b and A-1-c ratings will continue to do so until March 15 under an extension of Preference Rating Order P-11-a. Materials used in rebuilding machine tools which have been covered by Preference Rating Order P-77 with a rating of A-1-c will continue to use that rating under an extension date of the order to April 1, 1942.

Civil Aircraft—The Civil Air Patrol has been given a rating of A-10 to secure civil aircraft and parts by an amendment to Supplementary Order P-6-a.

Industrial Lift Trucks—The A-1-g rating for materials used in making industrial lift trucks and parts provided for in Preference Rating Order P-40 has been extended to March 10.

Defense Housing Materials—Manufacturers supplying building materials for defense housing projects should apply for priority assistance under the Production Requirements Plan embodied in Preference Rating Order P-55 Amended.

Steel Plate and Welding Electrodes—Priorities assistance is assured for deliveries of steel plate and welding electrodes used in defense training classes by Preference Rating Order P-92. Application for rating should be made on form PD-183.

Crane and Hoisting Equipment—Preference Rating Order P-5-b, which provides for ratings to cover needs of crane and hoisting equipment manufacturers, has been extended to May 1, 1942.

Elevators—Preference Rating Order P-72 covering materials for making repair parts for freight and passenger elevators, escalators and dumbwaiters has been extended indefinitely.

Chemical Maintenance and Operating Supplies—Preference Rating Order P-89 assigns an A-1-a rating to deliveries of materials to repair actual breakdowns in Chemical industry plants; A-1-c to materials required to avert immediately threatened stoppages; and A-3 to the procurement of materials for other repairs, maintenance and operation.

Stitching and Bookbinders Wire—An A-8 rating assigned for delivery of materials needed to make stitching and bookbinders wire by Preference Rating Order P-101.

Passenger Automobiles—Supplementary General Limitation Order L-2-g prohibits the manufacture of all passenger cars and light trucks either for civilian, military or export purposes beginning February 1.

Production Requirements Plan—Producers operating under the Production Requirements Plan may extend AA ratings without special permission by an amendment to Preference Rating Order P-90. Previously producers have been forbidden to make use of any preference rating except those assigned on form PD-25-A.

Aid For Small Manufacturers—Manufacturers whose annual volume of business is less than \$100,000 may avail themselves of the Modified Production Requirements Plan which is designed to enable small manufacturers engaged in war or essential civilian production to obtain priority assistance to meet needs for scarce materials. Applications should be made on form PD-25-X.

How to Get an Army Contract

(Continued from page 40)

waste, door mats, G. I. buckets, garbage cans, laundry bluing, laundry soap, laundry bags, marking devices, metal polish, milk cans, neatsfoot oil, naphthalene, office paste, pencils, packing and crating materials, paper boxes, rubber stamps, rust preventive compounds, sundry stationery supplies, steel writing pens, safety matches, sealing wax, soap powder, steel wool, sodium hypochlorite, shaving cream, toilet soap, typewriter ribbons, tooth powder, tooth paste, waste paper receptacles, wheelbarrows, wiping materials, wooden boxes, and wash basins; and supplies common to two or more branches of the service, and construction materials and equipment, are purchased at the depots listed above, as well as at the following:

Atlanta Quartermaster Depot, Glenn and Murphy Ave., S. W., Atlanta, Georgia.

Seattle Quartermaster Depot, 1519 Alaskan Way South, Seattle, Washington.
Quartermaster Supply Officer, San Antonio General Depot, Fort Sam Houston, Texas.

(Also purchases laundry supplies and equipment and coal.)

Kansas City Quartermaster Depot, 5401 Independence Ave., Kansas City, Missouri.

New Orleans Quartermaster Depot,
(Continued on page 62)

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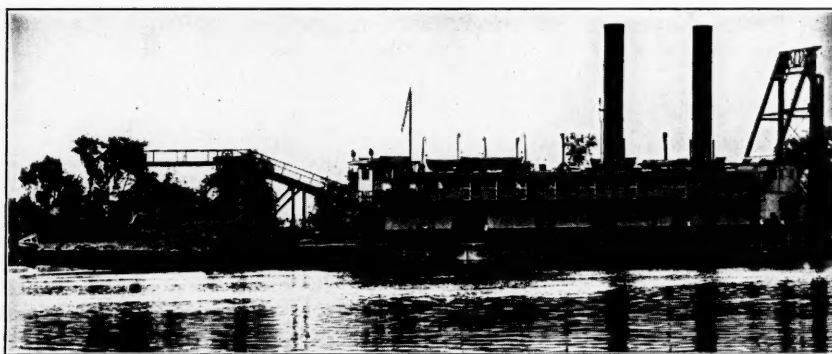
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South's Construction Contracts Remain Strong

(Continued from page 43)

Texas Panhandle to Wisconsin.

Humble Oil & Refining, Tidewater Associated Oil, Phillips Petroleum and Texas Companies, plan a \$2,000,000 gas recycling plant in the Erath field of Louisiana.

Barnsdall Oil Co. planned construction of a pipeline from the new Midway oil field to the Ouachita River.

McKamie Gas Cleaning Co., Inc., was recently organized for the purpose of erecting a de-sulphurizing plant near McKamie field on the east edge of Lafayette County. A gasoline recovery plant is also to be built.

Arkansas Louisiana Gas Co. of Little Rock, took an option on 40 acres near the Macedonia and Dorchester fields of Arkansas, where it proposes a sour gas sweetening plant, the third of its kind for that State.

American Brake Shoe & Foundry Co., North Kansas City, Mo., proposed a foundry and machine shop addition.

Railroads

Louisville & Nashville Railway Co., Louisville, Ky., let contracts for 1,475 cars valued at \$3,000,000.

Chesapeake & Ohio Railway made the award for 1,000 hopper cars to cost \$2,530,000.

St. Louis Southwestern Railway, St. Louis, Mo., will spend \$1,443,092 for additions and betterments during 1942.

Canning

Citrus Concentrates at Dunedin, Fla., let the contract for a \$1,500,000 citrus plant.

Spartanburg County Farmers Market, at Spartanburg, S. C., had plans under way for a \$125,000 peach cannery and storage plant.

Minerals

Smith Mining Co., Russellville, Ark., proposed a refinery for producing manganese sulfate.

B. F. Coggins, of Atlanta, Ga., who acquired the Tennessee Marble plant at Knoxville, Tenn., planned modernizing.

Dams

United States Engineers let the contract for the \$25,000,000 Center Hill dam for power and water conservation on the Caney Fork River, 14 miles from Carthage, Tenn.

United States Engineers made the award for construction of Bluestone dam, near Hinton, W. Va., where approximately \$10,000,000 will be spent.

United States Engineers let a \$1,766,872 contract for construction of the first section of Barker dam in Texas.

United States Engineers awarded a \$1,303,886 contract to construct floodgates and buildings at Freeport, Texas, where extensive magnesium plant construction is under way.

New Plants and Expansions in the South

(Continued from page 50)

VIRGINIA

Biggam Manganese Co., Inc., Herbert J. Cox, Canton, Ohio, one of incorporators, announced company will center operations in Bland and Giles Counties, Virginia; company leased 27,000 acres of land and is now reported producing 100 tons manganese weekly.

Expansion—State Corporation Commission authorized Chesapeake & Potomac Telephone Company of Virginia to borrow up to \$16,000,000 from its affiliated corporation, American Telephone and Telegraph Company, for additions and improvements in 1942; also authorized to issue \$10,000,000 in common stock, consisting of 100,000 shares at \$100 par.

Power plant—Ocoquan Co., Ocoquan Run, applied to Federal Power Commission, for license to build and operate a \$4,987,000 power plant at Ocoquan Run, ¼ mile upstream from Route 123 Highway Bridge at Tidewater about 14 miles southwest of Alexandria; development of power site will result in creation of 2600 acre artificial lake covering 19 miles of Ocoquan Run and 6 miles of Bull Run beyond the point where it joins Ocoquan Run; dam 125 ft. high would be built across Ocoquan Run to create the lake which would act as a supply reservoir for power plant to be created at the dam; application drawn by McMahon, Dean and Gallagher and Charles B. Hawley Engineering Corp., Munsey Bldg., both Washington, D. C. states that the proposed power plant would be used as a storage battery for the Virginia Public Service Co. and the Virginia Electric & Power Co.; application filed by George H. Kuntson, 61 Broadway, New York, power engineer.

GLEN WILTON—TNT plant—War Dept. engaged Hercules Powder Co. to carry on operation of TNT plant, to be known as Radford Ordnance Works No. 2.

RICHMOND—shipyards—Navy Department acquired site at end of Fourth St. in S. Richmond, for shops to fabricate ship parts, and will lease a site of 150 acres adjoining Amphill and Richmond Deepwater Terminals for erection of shipways and assembly purposes; cost of entire project, \$15,000,000; Newport News Shipbuilding & Dry Dock Co. through a subsidiary corporation, will operate the plants; work on project to start at once; buildings on site will be utilized for shops and training schools; Slaughter, Saville & Blackburn, Engrs., Electric Bldg., co-operated with Navy Dept. in selecting sites for the plants.

WEST VIRGINIA

CHARLESTON—expansion—Carbide and Carbon Chemicals Corp., 30 E. 42nd St., New York, plans to double capacity of new synthetic rubber plant; approximate total cost of construction and equipment \$10,000,000; Ford, Bacon & Davis, New York, in charge of construction; new plans are for a 40,000,000-lb. capacity plant.

POINT PLEASANT—TNT plant—War Department, having survey made for establishing TNT plant near Point Pleasant, Mason County; work being done by G. M. Barton Co., Toledo, Ohio, operating under a subcontract with E. B. Badger Co., Boston, Mass.

WEIRTON—expansion—Weirton Steel Co., subsidiary of National Steel Corporation, plans installing electrolytically-coated tin plating facilities.

SOUTH

Federal Dist. Judge George H. Moore, St. Louis, Mo., approved a \$10,653,985 improvement budget for Missouri Pacific Railroad Co. and 3 subsidiary roads for 1942; Missouri Pacific, \$8,893,400; New Orleans, Texas & Mexico Railway Co., \$797,570; International Great Northern R. R. Co., \$726,070; Missouri-Illinois R. R. Co., \$236,945; Guy A. Thompson, St. Louis, Mo., trustee.

Pennsylvania Railroad, Broad Street Station, Philadelphia, Pa., received authority from Interstate Commerce Commission to issue and sell \$18,500,000 equipment-trust certificates, Series M; plans include building of 6,020 freight cars, 50 cabin cars, 15

electric passenger locomotives and 12 steam locomotive tenders, in company's own shops; approximate cost of equipment, \$23,000,000.

Phillips Petroleum Co., Bartlesville, Okla., obtained rights-of-way and contemplates constructing a \$35,000,000 to \$50,000,000 natural gas pipe line to extend about 900 miles from Texas Panhandle producing areas to consuming districts in eastern and southern Wisconsin; work to start as soon as steel pipe is available; pipe line will be built by Wisconsin Transmission Co., a Phillips subsidiary; system is designed to furnish gas to 10 or more public utility companies operating 15 distributing systems throughout Wisconsin.

Texas Co., Houston, Tex., plans expending approximately \$25,000,000 on plants and other projects for the war effort, much of it on the Texas gulf coast; company is planning on plants for manufacture of butadiene, raw material from which synthetic rubber is made; among plants ready to get underway on the gulf coast are a \$2,500,000 lubricating oil plant and a \$7,000,000 alkylation plant for processing 100 octane aviation gasoline.

Wheeling and Lake Erie Railway Co., Cleveland, Ohio, received authority from Interstate Commerce Commission to issue and sell \$1,050,000 equipment trust certificates in connection with purchase of new equipment.

How to Get an Army Contract

(Continued from page 60)

Poland and Dauphin Streets, New Orleans, Louisiana.

Philippine Quartermaster Depot, Manila, P. I.

Puerto Rican General Depot, Fort Buchanan, P. R.

Hawaiian Quartermaster Depot, Honolulu, Hawaii.

Quartermaster Section, Panama-Pacific General Depot, Corozal, C. Z.

Quartermaster Section, Panama-Atlantic General Depot, Fort William D. Davis, C. Z.

Communications regarding procurement of ships, harbor boats, and other vessels for the army should be addressed to the Transportation Division (Water Transport), Office of The Quartermaster General, Washington, D. C.

Information concerning purchases by the Ordnance Dept., Air Corps, Chemical Warfare Service, Signal Corps, Medical Corps, Coast Artillery Corps and the Corps of Engineers will be given in the March MANUFACTURERS RECORD.

Air Line Space not All Taken by War Travelers

Air line travel is still operating normally and has been, with few exceptions, since the outbreak of hostilities, according to C. Bedell Monro, president of Pennsylvania - Central Airlines. "Somewhere along the line a rumor has gained considerable foothold to the effect that all air line space is 100 per cent occupied these days by persons traveling on war business. This is not true, even though a large portion of our patrons are concerned with the war and with war production. Frankly, this rumor has been responsible for a noticeable decline in our business, since many firms have been advised that our ships are running to peak capacity. It is naturally sound economics to quiet this rumor, but it must be pointed out that when normal traffic is resumed, priority must, of course, be given to those traveling in the interests of defending our nation."



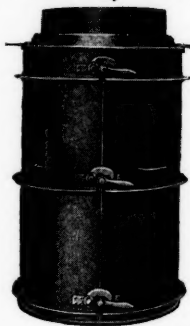
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Products from Coal

(Continued from page 27)

mobile radiators, and is an important solvent for dyes, inks, and stains. It can be oxidized to produce formaldehyde, an important ingredient in two types of synthetic resins; those of the phenol-formaldehyde, or Bakelite type, which is the oldest, and still the largest tonnage synthetic resin made; and those of the urea-formaldehyde type, comprising the inexpensive Beetle, Plaskon, and Unylite resins. It is noteworthy that in both cases, the other ingredient of the resin may also be of coal origin; phenol coming from coal tar, and urea by way of the ammonia synthesis.

Water gas, mixed with the nitrogen-containing blow gas, may also be used as the starting point for ammonia synthesis, although in this case none of the carbon of the coke appears in the final product. For this purpose the carbon monoxide is converted to carbon dioxide and washed out of the gas, leaving a mixture of nitrogen and hydrogen. This mixture is then converted to ammonia in a catalytic process. Ammonia is, of course, important, in the first place, for fertilizer manufacture and for the production of nitric acid; it is also used as the working fluid in refrigeration systems, as a cleaning agent and in many other chemical processes. In one of these it is made to react with the carbon dioxide previously removed from the water gas to form urea, the plastics ingredient mentioned above. Urea has many other uses, however; as fertilizer, as a pharmaceutical, and in the production of wrinkle-proof fabrics.

Methyl alcohol is only one of the alcohols produced in this synthesis. Perhaps the most important of the others is isobutanol from which are prepared the methacrylate resins of which the most striking member is Lucite, a crystal clear solid, rods of which have the astonishing property of carrying light around corners. Plexiglass, another transparent methacrylate plastic, has recently been used to form the nose section of giant bombing planes, permitting vision in all directions.

Under other conditions of pressure, temperature, and catalyst composition, water gas—this same simple mixture of carbon monoxide and hydrogen—reacts in the Fischer-Tropsch synthesis to produce gasoline and Diesel fuel, synthetic lubricating oils, and solid paraffins, raw materials for the production of synthetic fats and soaps. This is one of the two processes used by Germany and Japan in their attempts to overcome their lack of natural petroleum. The process is so flexible, however, that it may deserve some consideration as a source of chemical intermediates, if not of liquid fuels, in our economy. It has been suggested that in this country it might use waste natural gas as the basic fuel from which the water gas is to be made. This hardly seems reasonable as a long time proposition; while

large amounts of natural gas may have been wasted in the past, this tendency is decreasing, and it hardly seems possible that it can compete with water gas from coke in most of the industrial districts of the country.

All of the processes so far described use only a portion of the coal after it has been broken down by carbonization. One group—tar refining methods—works on the tar product, while the others use coke as raw material for synthesis. Thus a balance, from the coal point of view, can be achieved only by operating two different kinds of processes simultaneously. These disadvantages are eliminated in two processes in which the whole coal may be used.

The older of these is destructive hydrogenation, used in Great Britain and Germany as a source of liquid motor fuels direct from coal. The United States Bureau of Mines has set up a pilot plant operation to test the hydrogenation properties of American coals. Dr. Storch of that Bureau has pointed out that, while it is not yet necessary or economical to produce motor fuel from coal in this country, the hydrogenation process converts a relatively large proportion of the coal into phenolic materials, so valuable for the manufacture of synthetics. Where the total tar acids, as the commercial fraction is called which contains phenol, produced by carbonization amounts to 1% or less of the weight of the coal, 10 to 12% of the coal can be converted into this kind of material by hydrogenation. Thus, Storch¹ says "It is possible that . . . the first commercial exploitation of this process (hydrogenation of coal) in the United States will have for its main purpose the production of bulk organic chemicals, such as phenol, creosols, cylenols, benzene, toluene, xylene, solvent naphtha, naphthalene, tetrahydro-naphthalene, and pyridine bases." It is evident from what we have already discussed that economical bulk production of relatively pure chemicals of this type would immediately lead to a marked increase in the production of many of the synthetics already developed, as well as still more startling applications of organic chemistry to the production of structural materials.

The second of these processes for using the whole coal is still in the laboratory stage. Workers in the Coal Research Laboratory at the Carnegie Institute of Technology have found that coal can be oxidized—a sort of low temperature burning such as goes on in the human body—in acid solution with air or oxygen under pressure to produce organic acids of a few well defined types. These include oxalic and acetic and several—8 or 10—of the benzene carboxylic acids containing several acid groups. As much as 60% by weight of the coal can be obtained in the form of these acids, and the only by-product is carbon dioxide gas. The acids could be used directly for condensation reactions to give artificial

¹ H. H. Storch, Ind. Eng. Chem., 32, 867 (1940).

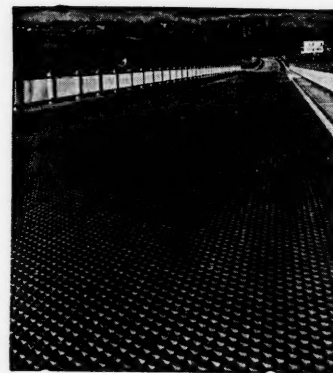
resins and to produce plasticizers of aromatic nature which are greatly needed in the commercial use of synthetic rubbers. It can hardly be doubted that many other uses of these remarkable materials will be found when they become available.

Vacant Factory Building Data Needed

The functions of the industrial building utilization section will be to collect all information on available vacant industrial buildings and make this information available to the Procurement Divisions of the Army and Navy, so that they may cooperate with the Plant Site Board in placing contracts for the manufacture of war materials in such a way that these buildings will be utilized, is the function of an Industrial Building Utilization Section of the Plant Site Board recently formed with Frederick A. Kimmich, industrial engineer from Detroit, in charge. This will accomplish two purposes: (1) because the buildings is already erected, production can start immediately or at least within a relatively short time; (2) a large amount of essential war materials that would be needed for a new structure will be saved for war purposes.

Mr. Kimmich asked that owners of usable vacant factory buildings mail to the Plant Site Board, Social Security Building, Washington, D. C., information as to land area, floor area and particulars regarding their plants.

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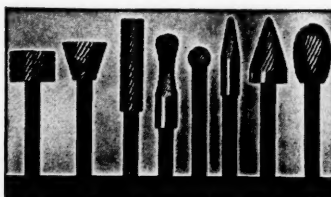
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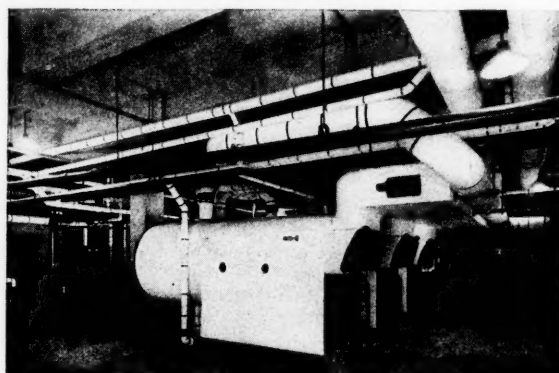
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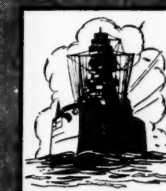
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Cooling Drinking Water



Marine Service



Cold Storage

The South's War Effort-- Chemicals

(Continued from page 35)

ity will not be available, however, until late fall or the end of 1942. The first nylon plant at Seaford, just across the Delaware-Maryland line in the former State, has been augmented by a second plant at Martinsville, Va., a \$11,000,000 project where full production will probably be reached soon.

Varied Developments

Copperhill, Tenn., is the scene of a \$3,340,000 project of the War Department. Oleum is to be produced. The contract was negotiated with the Tennessee Copper Co. This organization had been working for months on a project to produce sulphuric acid at the rate of 240 tons daily.

Production of explosives is being carried out at the Government Nitrate Plant No. 2 at Wilson Dam, Alabama. Plans announced about a year ago indicated that in addition to facilities to produce ammonium nitrate at the existing plant, a new and modern synthetic ammonia plant would be part of the \$6,217,000 project.

Vitamins and other chemicals will be manufactured at a new plant being finished near Elkton, Va., by Merck & Co., Inc. The company not long ago acquired 300 acres of land on the south fork of the Shenandoah River near that town.

Rosin esters are the product of the new plant built at Hattiesburg, Miss., by Hercules Powder Co. The unit increased the company's production of rosin esters by 60 per cent, and construction has begun that means another 33 per cent added to the output. The operation was located at the Mississippi town because of the proximity of large supplies of rosin and hydrogen. Hydrogen, which is required in large quantities for making hydrogenated methyl abietate, is obtained by cracking natural gas. Molten rosin is delivered to the plant by pipeline from the adjacent Hercules naval stores plant. This procedure eliminates packing, cooling, shipping, cracking and re-melting.

Newport Industries, Inc., Pensacola, started constructing a terpene chemicals plant during the latter half of 1941. This company in November celebrated its silver anniversary. Starting from seven buildings on a project to make the usual naval stores, the company is now a million dollar industry with plants in two states in addition to Florida. By-products developed by its chemists from the lowly pine stump include those used in manufacture of synthetic rubber, camphor, printers' ink and ingredients for plastics.

These references give some idea of the vastness of the South's chemical industry with its many millions of dollars invested in existing facilities and other millions being poured into expansion. They do not give details about the large investment the War Department has and is making in the South

(Continued on page 68)

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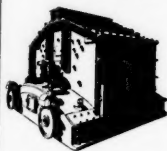


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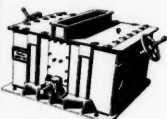
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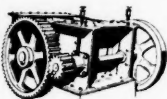
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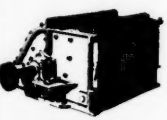
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The South's War Effort-- Chemicals

(Continued from page 66)

under such programs as the \$20,000,000 being expended at Edgewood Arsenal in Maryland, and at other strategic points.

As in the case of plastics, space will not permit listing the growth of the chemical industry in the South in recent years with its huge plants that are in all parts of the South and Southwest, nor the many millions that have been invested in undertakings that will mean so much to the future welfare of the country. Among outstanding plants of this kind are Commercial Solvents Corporation, with its ammonia plant proposition in Louisiana; Hercules Powder Co., with similar operations in Missouri; Dow Chemical's project for making chemicals from natural gas at Freeport, Texas, where their big magnesium expansion is located; and Mathieson Alkali's plans for expanding the Lake Charles, La. plant to produce alkali.

Petroleum

(Continued from page 29)

the project under way. Upward of 200 million cubic feet of gas will be processed daily. The gasoline or distillate yield is placed about 5,000 barrels.

Priorities are important in these times. New

plants recently granted ratings by the Office of Production Management, included Shell Oil Co., Houston, hydrocodimer, a blending agent; La Gloria Corp., Corpus Christi, an isobutane plant; Phillips Petroleum Corp., Borger, a 100 octane plant, and Gulf Refining Co., at Port Arthur. To cost \$1,000,000 this latter plant would include a Houdry catalytic cracking unit and an iso-octane plant to produce alkylates to blend the stock into 100-octane fuel.

The Magnolia refinery at Beaumont is said to be the county's biggest producer of aviation gasoline. It is operated by the company whose forebears date back before discovery of the famous Spindletop gusher in 1901. A monument to this birth of the present prosperous Texas oil industry was dedicated this year. Humble Oil and Texas Companies are offsprings. Fuel for the big Magnolia refinery is now being provided by a new 200-mile natural gas pipe from Jackson County, southwest Texas.

Texas Company, incidentally, erected a new office building at its Port Arthur refinery. Plans of Sinclair Refining Co. called for an aviation gasoline plant on the Houston ship channel. The W. R. Davis plant at Brownsville is reported to involve expenditure in the neighborhood of \$2,000,000. Lone Star Gasoline Co. constructed a recycling plant near Willow Springs. Its capacity is to process approximately 50 million cubic feet of gas daily. Completion of Pan American Refining Company's hydroforming plant at Texas City marked a mile-

(Continued on page 70)

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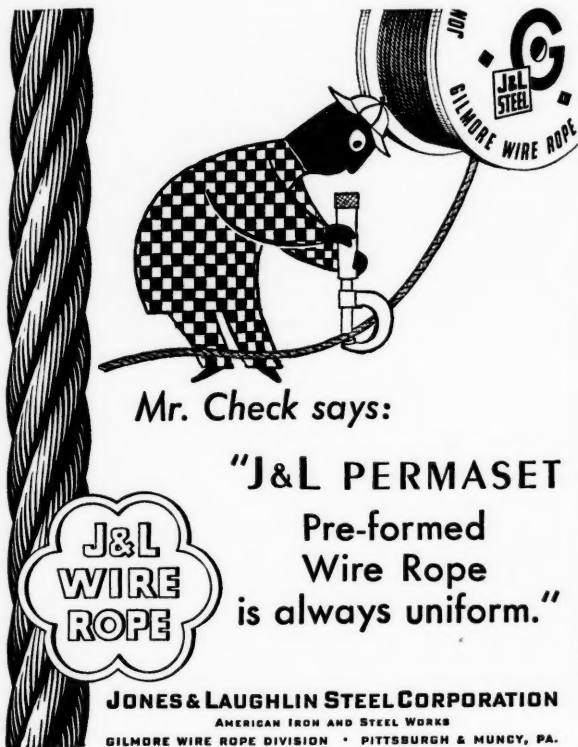
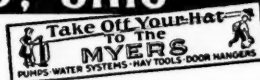
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The South's War Effort-- Petroleum

(Continued from page 68)

stone in world petroleum history. It was the first commercial unit of its kind. The process is particularly valuable to national defense, because it provides a new source of high octane aviation gasoline and also a large potential supply of toluol. About 5,000,000 gallons of the latter would be produced.

Work proceeded this year on a \$2,000,000 plant to make gasoline from natural gas at Palfurrias. The project was that of the La Gloria Corp., which spent an additional \$1,000,000 to drill wells and develop its properties. Products of the plant are being transported to Agua Dulce, where they are transferred to Corpus Christi, on the Texas Gulf Coast.

Lion Oil Refining Co. carried out one of the important developments. It finished a gas sweetening plant in the Magnolia Field, southwest of El Dorado, Ark. Gas "sweetening" is removal of hy-

drogen sulfide. This is being done at the rate of 17 million cubic feet daily, the gas being used in operation of the company's 17,000-barrel refinery near the new plant.

Carter Oil Co. now proposes a 200-mile pipe crude oil line from the Tinsley field in Mississippi to Baton Rouge, capital of Louisiana. It is estimated that cost of the line will be \$1,500,000. Standard Oil Company's plans for expansion in the Baton Rouge area include a \$17,000,000 item for aviation gasoline facilities.

A high priority rating granted late in December will mean immediate construction of a \$3,000,000 cycling plant in Texas. To process 274 million cubic feet of gas daily, the plant is understood to be the largest yet planned in the world. It will be undertaken jointly by the Stanolind Oil & Gas Co., Humble Oil & Refining Co. and Humble Pipe Line Co. Plans are now going ahead for construction of 12 new refineries in Texas for processing 100-octane gasoline. They will be located mostly on the Gulf Coast at points such as Houston, Texas City, Port Arthur, Beaumont, Corpus Christi and Brownsville.

1942 Plastics Catalogue—To meet the need for an "authoritative, timely and completely informative source of information about plastics," the Plastics Catalogue Corporation, 122 East 42nd Street, New York City, has published and released the 1942 Plastics Catalog, which the publishers claim to be the most comprehensive compendium on Plastics, past and present, that has ever been published. Containing more than 600 pages of documented facts, bolstered by new charts, the Catalog is divided into ten main sections treating every phase and

aspect development of the plastic industry, including for the first time an exhaustive treatment of Plastics in Defense. The Materials Section this year comprises about 150 pages of concise information, compiled by experts and covering every new development of any significance in this field, while the Plastics Engineering Section has been expanded to almost three times its original size. The section on Production Operations presents a complete and up to date discussion of every aspect of this vital phase of the industry, and the Machinery

and Equipment Section is complete with photographs of every type of press, machine, plant equipment and device figuring in the Plastics industry. There are sections on Laminates and Vulcanized Fibres, Plastic Coatings and Synthetic Fibres and Rubbers. The Plastic Properties Chart has been revised and amended, and the Solvents Plasticizers Chart has been brought up to date, while the Index and Directory Section reflects the phenomenal growth of the industry this year. The price of the Catalog is \$5.00.

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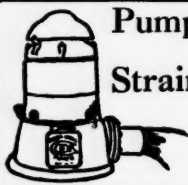
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WRITE FOR CATALOGUE

Baltimore and Ohio Railroad Report

Operating revenues of the Baltimore and Ohio Railroad Company, Baltimore, Md., for the 12 months of 1941 amounted to \$227,503,022, an increase of \$48,327,557 over the same period of 1940. For the month of December, 1941, operating revenues amounted to \$19,153,859, an increase of \$3,652,846 over December, 1940. After providing for an increase in wages for a period of four months, September 1 to December 31, and payroll taxes thereon, net income for the year 1941, after all interest accrued during the year and other charges, was \$21,091,883. Compared with \$5,549,497 for 1940, these figures show an increase of \$15,542,386.

Youngstown Sheet and Tube Appointment

The Youngstown Sheet and Tube Company, Youngstown, Ohio, announces the appointment of F. D. Carroll as District Sales Manager of its Dallas territory with headquarters at 610 Continental Bldg., Dallas, Tex.

United States Steel Subsidiaries Appointments

The appointment of W. Everett McLaine as Director of Public Relations and of Edward C. Myers as Assistant Director of Public Relations for United States Steel Corporation Subsidiaries in the Pittsburgh District has been announced. It is also announced that Walter E. Camp will become assistant to J. Carlisle MacDonald, Assistant to Chairman, United States Steel Corporation, New York, who, for the Chairman of the Board of Directors, exercises general direction of the public relations activities of the Corporation and its Subsidiaries. Public Relations offices for the Pittsburgh District will be at 436 Seventh Avenue.

Working directly under the President of the United States Steel Corporation of Delaware and the presidents of the Subsidiary companies in the district, Mr. McLaine will be responsible for all public relations functions of these Subsidiaries. He has been in charge of public relations activities in the Washington (D. C.) office of the Subsidiary Companies. Mr. Myers has been on the Public Relations staff of the United States Steel Corporation of Delaware in Pittsburgh, while

Mr. Camp has been Director of Public Relations, Pittsburgh District, Carnegie-Illinois Steel Corporation.

S. Fahs Smith

Closing a successful business career, S. Fahs Smith, President of S. Morgan Smith Company, York, Pa., died suddenly on January 19 at Palm Beach, Fla., at the age of 77 years. He was the last of the three original Smiths connected with the company, the other two being S. Morgan Smith, the founder and father, and C. Elmer Smith, older brother, all of whom pioneered their way to prominence in the field of hydraulics.

S. Fahs Smith entered his father's business in 1883, and from 1896, when the business was incorporated as the S. Morgan Smith Company, he served until 1937 as Senior Vice President and director, when he assumed the presidency. He was active until the end in matters of policy and management and shared with his associates the responsibility for the progressive development not only of water turbines and accessories, but also valves, pumps, and recently the designing and experimental work on the new Wind Turbine which is now claiming the interest of the power engineering world.

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30—Portable gasoline driven air compressors, all makes, these sizes, 310 ft., 260 ft., 220 ft., 160 ft., and 110 ft.

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7—1-150 Blaw Knox bins: 1-118 ton Blaw Knox, 1-72 ton Blaw Knox, 1-51 ton Blaw Knox, 1-45 ton Blaw Knox, 2-30 ton Johnson. All 2 comp. except 72 ton Blaw Knox, 3 comp. Above with or without weigh batchers.

CABLEWAYS

1—Lidgerwood 15-ton cap. cableway, 2300' span, with Lidgerwood 12 1/2 x 15" steam hoist with or without steel towers.

CRANES, DRAGLINES AND SHOVELS

1—Link Belt, K-55, Ser. No. 1698, 70' boom, 2 yd. bucket, also have 2 yd. shovel attachment.

1—Link Belt, K-48, Ser. No. 1728, 60' boom, 2 yd. bucket.

1—Northwest Model No. 5, Ser. No. 3572, 50' boom with 1 1/2 yd. pull shovel attachment.

1—Link-Belt model K-12, Ser. No. 1265, 45' boom, 1 1/2 yd. bucket, also 1 yd. trench hoe att. or 1 1/2 yd. shovel front.

2—Northwest Model 104, Ser. No. 2079, 1386, 45' boom, 1 1/2 yd. bucket; with 1 yd. shovel attachment.

3—Northwest Model No. 4's, Ser. Nos. 3441, 3445, 3493, with 40' boom and 1 yd. pull shovel attachments.

2—Erie, gas air, 2 yd. Ser. No. 4365, 9758, with 45' boom and shovel attachment.

2—Northwest model 105, Ser. Nos. 1645, 1522, 40' boom, 1 yd. bucket.

3—Osgood Heavy Duty, Ser. No. 2069 and 2087, 2463, 40' boom, 1 yd. bucket and with 1 yd. shovel attachment.

1—Osgood "Commander" 3/4 yd., 30' boom, Ser. No. 2403 with 3/4 yd. bucket.

1—Thew 3/4 yd. Gasoline Shovel with 3/4 yd. shovel front and 40 ft. crane boom. Serial No. 2801.

1—Koehring Model 301, Ser. 544 and 40' boom, 3/4 yd. bucket.

1—P&H Mill 206, Ser. No. 1901, 3/4 yd., 40' boom.

1—Byers Model 128, Ser. No. 4119, 30' boom, 3/4 yd. bucket.

1—Byers Bearcat model 27, Ser. No. 5289, 30' boom, 3/4 cl. sv. 3/4 yd. bucket.

1—Erie Steam Crane, 40' boom with or without 3/4 yd. shovel front.

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Bltd.: 368, 540, 676, 870 & 1300 Ft.
Diesel: 105, 368, 425, 603, 900 & 1300 Ft.
Gasoline: 110, 220, 315, 415 & 500 Ft.
Steam: 150, 368, 540, 1500 & 1958 Ft.

CRUSHERS: Jaw 48x12, 16x19, 18x10, 24x13, 36x15, 30x10, 30x15, 36x24, 36x48

STEEL TANKS: 10,000, 15,000 & 20,000 Gal.

BOILERS: Economic—60, 100 & 125 H.P.

BUCKETS: Clamshell—4, 1 Yd. & 2 Yd. Cap.

LOCOMOTIVES: Gas and Diesel—4, 6, 8, & 14 ton, 20 ton, 30 ton & 55 ton.

CRANES: Caterpillar—6 ton, 12 ton, 15 ton

CRANES: Locomotive: 15, 20, 25 & 35 ton

HOISTS: Steam—6x8, 7x10, 8 1/2 x 10 & 9x12

Electric: 35, 60, 100, 125, & 400 H.P.

Gasoline: 15, 35, 60 & 110 H.P.

MIXERS: Concrete: 10S, 14S, 21S & 28S

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Stiff Leg: 8, 10, 15, 25 and 75 ton Cap.

BELT: Conveyor: 14 In., 16 In., 18 In., 24 In., 30 In., 36 In., 40 In., 48 In., 60 In.

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HAMMERMILLS: 36x24, 24x18, No. 3, 4 & 6

SCREENS: Vibrating: Hummer 4x5 & 3x5

CARS: Dump: 1 Yd., 1 1/2 Yd., 3 Yd., 12 Yd.

ENGINE: Diesel: 60 H.P. & 100 H.P. F.M.

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